Sam Allen Wholesale

Marine, Outdoor Leisure & Industrial Accessories

Ultraflex Steering & Controls

HAINES HUNTER

Contents

Introduction 415 - 416

Steering Wheels 417
- Steering Wheels . . . . . 418 - 419
- Non-magnetic Stainless Steel Wheels 420
- Stainless Steel Steering Wheels . . . . . 421 - 422
- Steering Wheel Spares & Accessories 423

Mechanical Steering System Selection Guide 424

Mechanical Steering System 425
- Mechanical Steering Kits . . . . . 425 - 426
- Mechanical Steering Helms. . . . . 427 - 429

Mechanical Steering Cable Replacement Selection Guide 430

Mechanical Steering Cables 431
- Steering Cables 431
- Mechanical Steering Spares & Accessories 432 - 434

Hydraulic Steering Systems 435
- Hydraulic Steering Introduction & Cross Reference 435
- Hydraulic Steering Kits . . . . . 436 - 441

Hydraulic Hoses 442
- Nylon & High Flex Hoses. 442
- Ultraflex® Hoses Kits 443
- Silver Steer™ Hoses Kits 444

Hydraulic Outboard Cylinders 445
- Front Mount Cylinders . . . . . 445 - 447
- SilverSteer™ Front Mount Cylinders . . . 448 - 449
- Side Mount Cylinders . . . . . 450 - 451

Tie Bars 452
- Tie Bars . . . . . 452 - 453

Hydraulic Inboard Cylinders 454
- Inboard Cylinders . . . . . 454 - 458

Hydraulic Helm Pumps 459
- UP20 Helm Pumps. 459
- Front Mount. 460
- Tilt Mount 461
- Rear Mount 462
- SilverSteer™ Front Mount 463
- SilverSteer™ Tilt Mount 464

Steering System - Power Assisted 465
- MasterDrive™ System Introduction 465
- Single & Dual Cylinder Application 466
- MasterDrive™ System . . . . . 467 - 468

Hydraulic Steering Accessories 469
- Hose Fittings. . . . . 469 - 470
- Hydraulic Accessories. 471
- Hydraulic Cylinder Spares 472

Engine Controls 473
- Side Mount Engine Controls . . . . . 473 - 474
- Top Mount Engine Controls. . . . . 475 - 476
- Two Lever - Single Function per Lever Engine Controls 477
- Single & Two Lever - Single Function per Lever Engine Controls 478

Engine Electronic Control Systems 479
- Power A Mark II Engine Controls 480
- System Control Units & Main System Cables . . . 481
- Main System Cables 482
- Spare Parts, Network Terminators & E-Throttle Unit Charts 483
- E-Throttle Charts & Trolling Valve Systems Components 484
- Trolling Valve Systems Order Guide . . . 485 - 486

Engine Control Cables 487
- Engine Control Cables . . . . . 487 - 490

Engine Controls 491
- Spares & Accessories . . . . . 491 - 494

ULTRAFLEX
STEERING & CONTROLS

Ultraflex® Group has over 70 years experience in manufacturing the highest quality and most innovative steering and control systems. Based in Italy and distributed worldwide, Ultraflex® has a reputation as an industry leader.

- Their quality management system involves all the company resources & processes starting from the design, in order to assure product quality to the customer
- Set up the actions to maintain and improve the quality standards constantly
- Pursue a continuous process improvement to meet the market needs
- Constantly test the products to verify their conformity with the EEC 94/25 and ABYC (American Boat and Yacht Council) requirements.

Products include mechanical steering systems, hydraulic steering for outboards, inboards and sterndrives, control boxes and cables, and an extensive range of steering wheels. All Ultraflex® steering and control products meet CE and ABYC requirements. From 4m to 20m vessels, Ultraflex® is used by some of Australia's leading boat builders.

Ultraflex® Guarantee Conditions & Exclusions
Ultraflex® products are guaranteed against defects in material or workmanship for a period of two years following the date of manufacture. If the Ultraflex® products are installed and used on commercial boats the guarantee is limited to one year following the date of manufacture.

Material colour tabs have been provided on certain Ultraflex® steering wheels product lines to give a guide for the assorted colours available in each steering wheel.

NOTE: however every attempt is made to match the material colour it is merely a guide and should not be a substitute for seeing the actual product.

PATENTED HUB DESIGN

Ultraflex® steering wheels marked with this symbol are provided with an exclusive patented hub that simply allows the steering wheel to always be aligned accurately for quick assembly.

Testimonial

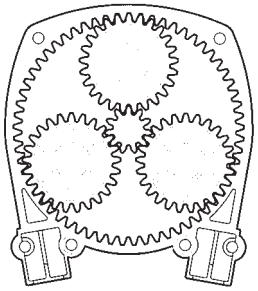
After installing all makes and models of hydraulic steering if you like something smooth at your finger tips and in your hands, fit Ultraflex® hydraulics. Reliability and Smoothness is the key.

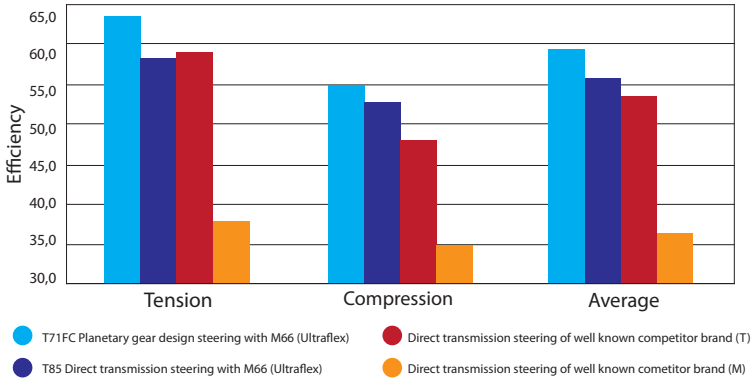
Scotty Kerrisr
Scotty's Mobile Marine

Advantages of Planetary Gear Design

The Planetary Gear design has three satellite gears that rotate on their axis and at the same time rotate around the central helm axis. This allows for equal distribution of engine torque over three points of the central gear, dividing and balancing the system loads. The benefits of this special design are increased system longevity, increased efficiency and less engine feedback compared to single pinion gear helms.
Ultraflex® mechanical steering helms T71FC, T72FC, T73NRFC, T74NRFC (Non-reversible) and T81FC (Tilting) helms use a Planetary Gear Design.

All helms carrying this symbol use Planetary Gear Design





Efficiency Comparison Tests
3 bends at 90° 1000N
NOTE: Indicated figures have been obtained after 500 cycles of running from samples bought from aftermarket sources.

The Importance of a Non-reversible Steering System for Increased Safety

The steering system of a boat is the mechanism that determines the boat direction when the steering wheel is turned. If, for any circumstance, the driver does not hold the steering wheel, a dangerous situation may occur caused by a sudden change of direction of the boat due to external forces (waves, currents, etc) or internal forces such as rudder torque originated by the way of rotation of the propeller. Engine torque usually generates a load on the steering system that must be continually compensated for by the driver even when the boat is going straight. The additional effort by the driver to maintain a true course can often cause fatigue.

With Ultraflex® Non-reversible steering helms T73NRFC, T74NRFC, T83NRFC the loads applied to the steering system are no longer a problem. A special patented device allows the helm shaft to lock until turned by the driver, maintaining the boat direction and neutralizing the feedback loads on the steering cable. This mechanism is engaged when the driver is not turning the wheel and is automatically disengaged as soon as the driver applies pressure on the wheel to change direction of the boat. The Ultraflex® Non-reversible mechanism makes driving a boat safer and easier.

Steering Wheels

Ultraflex® Thermoplastic Anti-Shock with Hard Grip

Great Value

83720

83730

83721

Part No.	Description	Depth	Diameter (mm)
83720	V32N Steering Wheel, Black	92mm	335mm (13.2”)
83730	V33N Steering Wheel, Black	105mm	342mm (13.4”)
83721	Spare Black Cap suits 83720 fits 79mm Bore, 3 Spade		

- Thermoplastic anti-shock material.
- Hard touch grip.
- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.

Ultraflex® Thermoplastic Anti-Shock with Soft Grip

Great Value

83735

83746

Part No.	Description	Depth	Diameter (mm)
83735	V38 Black Grip, Black Spokes	-	350mm (13.8”)
83746	V45 Black Grip, Black Spokes	82mm	280mm (11”)

- Thermoplastic anti-shock material.
- Soft touch grip.
- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.

Ultraflex® Capri Wood Grip

PATENTED HUB DESIGN

83753

Wood

Part No.	Description		Diameter (mm)
83753	Wood Grip With Silver Spokes		320mm (12.6”)

- Patented hub allows the steering wheel to be aligned when installed.
- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.

Ultraflex® Corsica Soft Grip

PATENTED HUB DESIGN

83755BB

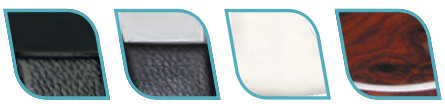
83755

83755WS

83755W

Part No.	Description	Depth	Diameter (mm)
83755	Black Soft Grip, Silver Spokes	88mm	350mm (13.8”)
83755BB	Black Soft Grip, Black Spokes	88mm	350mm (13.8”)
83755W	White Soft Grip, Silver Spokes	88mm	350mm (13.8”)
83755WS	Wood Soft Grip, Silver Spokes	88mm	350mm (13.8”)

- Patented hub allows the steering wheel to be aligned when installed.
- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.


Black/Black Black/Silver White Wood

Ultraflex® Tavolara Steering Wheel

Part No.	Description	Diameter (mm)
83758	Black Grip, S/S Spokes	350mm (13.8”)

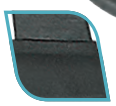
- Patented hub allows the steering wheel to be aligned when installed.
- Fits a standard 3/4” tapered shaft.
- Premium wheel suitable for premium fishing boats and super yachts.
- Ideal for hydraulic steering applications.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.

Black/Silver

Ultraflex® Nisida Soft Grip

Part No.	Description	Diameter (mm)
83765	Nisida Black Grip, Black Spokes	350mm (13.8”)
83770	Nisida Black Grip, Silver Spokes	350mm (13.8”)

- Polyurethane grip.
- Patented hub allows the steering wheel to be aligned when installed.
- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.



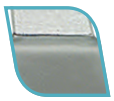
Black/Black

Black/Silver

Ultraflex® Spargi Soft Grip

Part No.	Description	Diameter (mm)
83802SS	Silver Grip With Silver Spokes And Black Grip Inserts On Each Side	350mm (13.8”)

- Polyurethane grip with inserts.
- Patented hub allows the steering wheel to be aligned when installed.
- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.



Silver/Silver

Ultraflex® Thermoplastic Anti-Shock Antigua Soft Grip

Part No.	Description	Depth	Diameter (mm)
83798	V61BR Burl Wood Grip, Black Spokes	88mm	350mm (13.8”)

- Patented hub allows the steering wheel to be aligned when installed.
- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.

Burl Wood

Steering Wheels

Italian 3 Spoke Riv Sports Wheel

Great Value

Part No.	Description	Diameter (mm)
83723	3 Spoke Riv Sports Wheel Black	350mm (13.8”)

- Fits a standard 3/4” tapered shaft.
- Ideal for smaller boats with mechanical or hydraulic steering.

Italian 3 Spoke Sports Wheels

Part No.	Description	Diameter (mm)
83739	3 Spoke Black S/Grip Wheel Black	350mm (14”)

- Fits a standard 3/4” tapered shaft.
- Ideal for all types and size boats from leisure to fishing.

“Ace” 3 Spoke Wheel

Great Value

Part No.	Description	Diameter (mm)
83788	“Ace” 3 Spoke, Black Wheel, Hard Grip	320mm (12.6")

- Fits a standard 3/4” tapered shaft.
- Canadian made quality.

“Storm” 4 Spoke Wheel

Great Value

Part No.	Description	Diameter (mm)
83789	“Storm” 4 Spoke Black Wheel, Hard Grip	340mm (13.4")

- Fits a standard 3/4” tapered shaft.
- Canadian made quality.

Traditional Styled Teak Steering Wheel

62160

62162 & 62164

Part No.	Description	Diameter (mm)
62160	Teak Steering Wheel With Cap	450mm (17.7”)
62162	Teak Steering Wheel With Cap	500mm (19.7”)
62164	Teak Steering Wheel With Cap	600mm (23.6”)

- Genuine teak.
- Fits a standard 3/4” tapered shaft.
- Supplied with a brass centre hub.

Ultraflex® V52 Non-magnetic Stainless Steel Wheels

Part No.	Description	Depth	Diameter (mm)
83701B	Non-magnetic S/S Wheel with Black Grip	73mm	320mm (12.6")
83701W	Non-magnetic S/S Wheel with White Grip	73mm	320mm (12.6")
83701G	Non-magnetic S/S Wheel with Grey Grip	73mm	320mm (12.6")

- Polyurethane grip.
- Non-magnetic stainless steel wheels eliminates compass interference.
- Fits a standard 3/4" tapered shaft.
- Supplied with a centre hub.
- Symmetrical design is ideal for hydraulic steering applications.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.

Ultraflex® V57 Non-magnetic Stainless Steel Wheels

Part No.	Description	Depth	Diameter (mm)
83700	Non-magnetic S/S Wheel with Black Grip	76mm	350mm (13.8")
83700W	Non-magnetic S/S Wheel with White Grip	76mm	350mm (13.8")
83702	Non-magnetic S/S Wheel with Grey Grip	76mm	350mm (13.8")

- Polyurethane grip.
- Non-magnetic stainless steel wheels eliminates compass interference.
- Fits a standard 3/4" tapered shaft.
- Supplied with a centre hub.
- Symmetrical design is ideal for hydraulic steering applications.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.

Ultraflex® V62 and V67 Non-magnetic Stainless Steel Wheels with Mahogany Grip

Part No.	Description	Depth	Diameter (mm)
83706	Mahogany grip with S/S spokes and mahogany centre cap	108mm	350mm (13.8")
83708	Mahogany Grip with S/S Spokes, Mahogany and S/S Centre Cap	108mm	450mm (15.7")

- Genuine mahogany.
- Non-magnetic stainless steel wheels eliminates compass interference.
- Fits a standard 3/4" tapered shaft.
- Supplied with a centre hub.
- All steering wheels are CE marked in conformity with the EN 28848 - EN 29775 and ABYC P22 safety standards.

Stainless Steel Steering Wheels

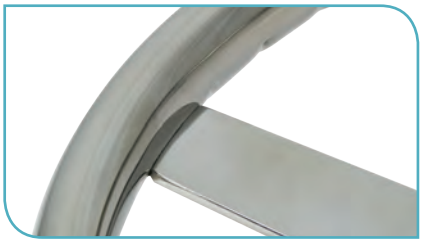
Highly Polished 304G and 316G Stainless Steel Wheels

62096 & 62098

62100, 62101 & 62102

Part No.	Description	Diameter (mm)
62096	304G S/S Wheel with Grip & Knob	390mm (16”)
62098	304G S/S Wheel with Grip & Knob	340mm (13.2”)
62100	304G S/S Wheel with Grip	390mm (16”)
62101	316G S/S 3 Spoke Wheel	390mm (16”)
62102	304G S/S Wheel with Grip	340mm (13.2”)

- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub.
- Supplied with a highly polished stainless steel cap.
- Finger indents around stainless steel wheel for comfortable grip.
- Flat spoke steering wheel.
- 4mm spoke thickness.



Double Rim Destroyer Style Stainless Steel Wheel

Part No.	Description	Diameter (mm)
62111	Double Rim S/S Wheel, Wood Grips	600mm (23.6”)

- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub.
- High quality welds on stainless steel wheel, spokes and centre hub.
- Elliptical outer rim for comfortable grip.
- Spoke diameter 9.5mm.
- 10° dish.

Italian Premium Mahogany Wheel

Part No.	Description	Diameter (mm)
83710	Mahogany Wheel With Highly Polished 316G S/S Spokes	550mm (21.6”)

- Genuine mahogany.
- Fits a standard 3/4” tapered shaft.
- Supplied with a centre hub cap.
- Highly polished 316G stainless steel spokes.
- Large diameter mahogany outer rim for comfortable grip.

Stainless Steel Steering Wheels

Highly Polished Stainless Steel Dish Wheels

Part No.	Description	Diameter (mm)
62106	10° Dish, 3/4" Tapered Shaft	390mm (16")
62109	10° Dish, 3/4" Tapered Shaft	450mm (18")
62104	20° Dish, 3/4" Tapered Shaft	330mm (13")
62112	20° Dish, 3/4" Tapered Shaft	500mm (20")
62105	25° Dish, 3/4" Tapered Shaft	390mm (16")
62107	Flat, No Dish, 3/4" Tapered Shaft	390mm (16")
62110	Flat, No Dish, 3/4" Tapered Shaft	450mm (18")
62114	Flat, No Dish, 3/4" Tapered Shaft	500mm (20")
62117	Flat, No Dish, 3/4" Tapered Shaft	600mm (24")

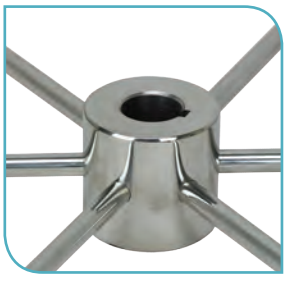
- High quality welds on stainless steel wheel, spokes and centre hub.
- Elliptical outer rim for comfortable grip.
- Ranging in diameter from 330mm to 600mm.
- All wheels come with centre hub and cap.

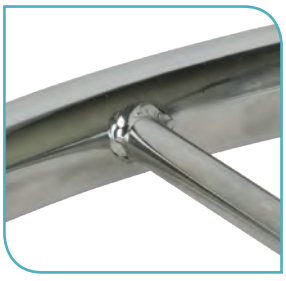
Highly Polished Stainless Steel Flat Wheels

Part No.	Description	Diameter (mm)
62115	Flat, No Dish, 1" Parallel Shaft	500mm (20")
62116	Flat, No Dish, 1" Parallel Shaft	600mm (24")
62118	Flat, No Dish, 1" Parallel Shaft	700mm (28")
62120	Flat, No Dish, 1" Parallel Shaft	750mm (30")
62128	Flat, No Dish, 1" Parallel Shaft	1010mm (40")
62129	Flat, No Dish, 1" Parallel Shaft	1060mm (42")

- Screwed and high quality welded stainless steel wheel.
- Elliptical outer rim for comfortable grip.
- Ranging in diameter from 500mm to 1060mm.

NOTE: 316G stainless steel dome wheel nut to be ordered separately (P/N: 62060, 62061, 62062). See Steering Wheel Spares and Accessories for more information.





Steering Wheel Spares & Accessories

Removable Stainless Steel Wheel Knob

Part No.	Description
62124	Stainless Steel Knob

- Suits stainless steel wheels.

Ultraflex® Steering Wheel Spares

83784

83784B

83785

83786

83787

Part No.	Description
83784	Hub and Cap with Alloy Centre, fits 3/4” tapered shaft
83784B	Replacement Black Cap suits 83784, fits 50mm Bore
83785	Black Dress Ring
83786	Black Screws (Set of 6)
83787	Silver Screws (Set of 6)

- Suits Ultraflex® steering wheels.

Black Ultraflex® Cap

Part No.	Description
83721	Black Cap Suits 83720, fits 79mm Bore, 3 Spade

- Suits Ultraflex® steering wheels.

316G Stainless Steel Dome Wheel Nut

Part No.	Description	Thread
62060	316G S/S Dome Wheel Nut	1/2” UNF
62061	316G S/S Dome Wheel Nut	M12
62062	316G S/S Dome Wheel Nut	5/8” UNF

- Suits 62115, 62116, 62118, 62120, 62128 and 62129.

Polished Stainless Steel Wheel Cover

Part No.	Description
62063	Polished S/S Wheel Cover, fits 48mm Bore

- Suits stainless steel wheels.

Steering Wheel Adaptor

Part No.	Description
62150	Steering Wheel Adaptor

- Made from high quality spun bronze to our specifications, this adaptor is used to convert a 1” Parallel shaft steering wheel to a 3/4” tapered shaft on the helm.

Mechanical Steering System Selection Guide

Steering System Selection Guide Recommended and Max HP Rating

Steering Helm Systems		OUTBOARD: Engine Power HP up to 50mph (25 50 75 100 125 150 175 200 225 250 275)	OUTBOARD: Exceed 50mph	INBOARD: Boat Length up to 10.5m (35ft)	STERNDRIVE*: Power Assisted
T67	Boat Length up to 9m (30ft)	Optimal 55hp	-	-	-
T85		Optimal 75hp / Max 115hp	-	-	✓
T81FC		Optimal 150hp / Max 225hp	-	✓	✓
T71FC		Optimal 150hp / Max 225hp	-	✓	✓
T72FC		Twin Cable Rotary System / Optimal 200hp / Max 275hp	Twin Cable*	✓	✓
T73NRFC		Optimal 150hp / Max 225hp	-	✓	-
T74NRFC		Twin Cable Rotary System / Optimal 200hp	Twin Cable*	✓	-
G86		Optimal 180hp / Max 250hp	-	✓	✓
G88NR		Optimal 200hp / Max 275hp	-	✓	-
G96		Optimal 180hp / Max 250hp	-	✓	✓
G98NR		Optimal 200hp / Max 275hp	-	✓	-

✓ Recommended for optimal performance ✓ Maximum horsepower (HP) rating

Speed, hull, horsepower, engine type, displacement and size are major factors in boat performance and handling characteristics. The above selection guide should be used as a general reference only. Although mechanical helms are rated to high hp ratings, Sam Allen Wholesale highly recommends hydraulic steering to be fit to all motors above 115kW (150hp) for optimum performance and maximum customer satisfaction. For any further information please contact our Sales Department.

**NOTE:* *Twin cable systems are recommended for boats that exceed 50 mph. Always follow engine manufacturer's instructions.*

Sterndrive engines not equipped with power steering can create very high steering loads. Our hydraulic steering systems are recommended for these type of boats.

How To Measure For New Steering Cable Installation

One of the major factors in selecting a steering system is proper cable length. Due to specific routing in each boat, these approximate lengths will vary. Final selection should be made with the assistance of a qualified technician.

Add. A + B + C and subtract 10 cm (4") for each 90° bend in the cable. For installation through the engine tilt tube, add 30.5 cm (1 ft) to the measure calculated above. To order in foot length, divide by 30.5 and round off to next whole foot.

Fig. 1

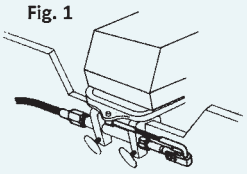


Fig. 2

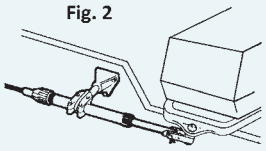
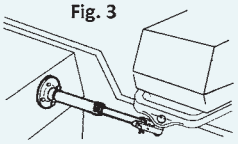
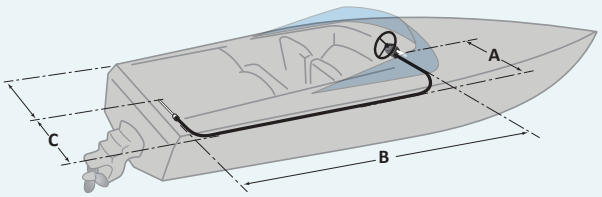


Fig. 3

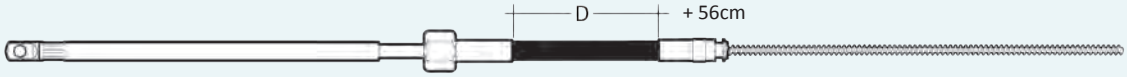




Tilt Tube Mounting - Fig. 1
Example (dimensions in cm):
A (50) + B (250) + C (80) = 380 - 20
for two 90° bends = 360 + 30.5
For a thru-tube installation 390.5cm : 30.5 = 12.8ft; round off to 13ft.

Transom Support or Splashwell Mounting - Fig. 2-3
Example (dimensions in cm):
A (50) + B (250) + C (80) = 380 - 20 for two 90° bends = 360:
30.5 = 11.8ft; round off to 12ft.

Measuring for Replacement Steering Cables



D = Conduit length

Order Length: **"D" dimension + 56cm**

To order in foot length, divide for 30.5 and round up to the next whole foot

Example: D= 305cm + 56cm = 361 : 30.5 = 11'8 ft. Round up to 12 ft

Mechanical Steering System

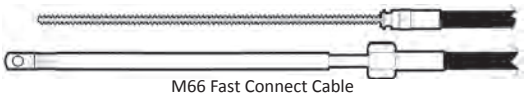
Mechanical Steering Kits

Ultraflex® T85 Rotary Helm Steering System Kits

T85 Helm - 83525

Part No.	Description
83512B	12ft M66 Cable, T85 Helm and Bezel Kit
83513B	13ft M66 Cable, T85 Helm and Bezel Kit
83514B	14ft M66 Cable, T85 Helm and Bezel Kit
83515B	15ft M66 Cable, T85 Helm and Bezel Kit

- Kit contains: Bezel 105mm diameter, T85 Helm **83525** and M66 Cable.
- Fast connect and simple installation.
- All stainless steel cable output ends as per ABYC P17 safety standards.
- Stroke length 228mm (9”).
- Minimum steering cable bend radius 200mm (7.9”).
- Corrosion resistant materials.
- Particularly suitable where clearance is limited.
- Steering wheel turns approximately 3 times lock to lock.
- Stroke 228mm.
- Maximum allowable steering wheel diameter 406mm .
- Minimum steering cable bend radius 200mm.
- Minimal feedback.
- Compact for mounting.
- The T85 helm is recommended for use with engines around 75hp and a maximum of 115hp.
- Exceeds both EN 28848 and ABYC P17 safety standards.



M66 Fast Connect Cable

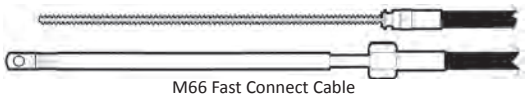
Refer to “Measuring for Replacement Steering Cables” on page 424.

Ultraflex® T71FC Planetary Gear Helm Steering System Kits

High Performance

T71FC Helm - 83526

Bezel - 83545



M66 Fast Connect Cable

Part No.	Description
83512PB	12ft M66 Cable, T71FC Helm and Bezel Kit
83513PB	13ft M66 Cable, T71FC Helm and Bezel Kit
83514PB	14ft M66 Cable, T71FC Helm and Bezel Kit
83515PB	15ft M66 Cable, T71FC Helm and Bezel Kit
83516PB	16ft M66 Cable, T71FC Helm and Bezel Kit
83517PB	17ft M66 Cable, T71FC Helm and Bezel Kit
83518PB	18ft M66 Cable, T71FC Helm and Bezel Kit

- Kit contains: 90° Bezel **83545**, T71FC Helm **83526** and M66 Cable.
- Fast connect and simple installation.
- All stainless steel cable output ends as per ABYC P17 safety standards.
- Stroke length 228mm (9”).
- Minimum steering cable bend radius 200mm (7.9”).
- Bezel 130mm diameter
- Corrosion resistant materials.
- Particularly suitable where clearance is limited.
- Optional 20° bezel kit.
- Standard 3/4” tapered shaft.
- Steering wheel turns approximately 3.8 times lock to lock.
- Maximum allowable steering wheel diameter 406mm (16”).
- Minimal feedback.
- Compact for mounting.
- The T71FC and T72FC helm is recommended for use with engines around 150hp and a maximum of 225hp.
- For boats exceeding 50mph the twin cable steering system T72FC is recommended.
- Exceeds both EN 28848 and ABYC P17 safety standards.

Refer to “Measuring for Replacement Steering Cables” on page 424.

Ultraflex® T73NRFC Planetary Gear Helm Steering Systems

Ultraflex® Non-reversible Planetary Gear Fast Connect Helms

These helms operate with 3.8 turns lock to lock and a stroke of 228mm. Their outstanding features are the no feedback design that incorporates a patented Non-reversible mechanism, which eliminates continuous load on the operator caused by propeller torque. These helms are suitable for larger outboards and sports boats. They use the M66 Ultraflex® cable or a Seastar SSC62 style cable. There are two mounting options available, a 90° and a 20° bezel kit to allow for angled and vertical dashboards.

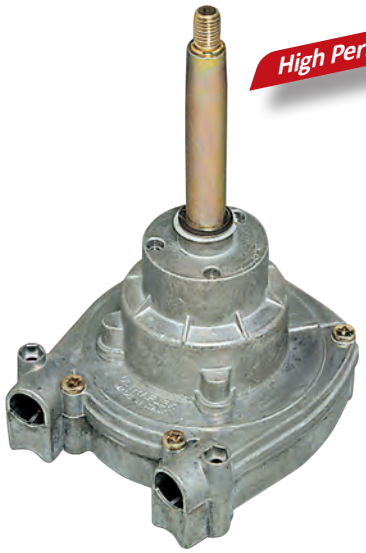
The importance of a Non-reversible steering system for increased safety. The steering system of a boat is the mechanism that determines the boat direction when the steering wheel is turned. If, for any reason, the driver does not hold the wheel, a situation of danger may occur caused by a sudden change of direction of the boat due to external forces (waves, current, etc) or internal forces such as the rotation of the outboard or stern drive engine originated by the way of rotation of the propeller. Engine torque usually generates a load on the steering system that must be continually compensated for by the driver even when the boat is going straight. The additional effort by the driver to maintain a true course can often cause fatigue. With Ultraflex® Non-reversible steering helms the load applied to the steering system is no longer a problem. A special patented devise allows the helm shaft to lock until turned by the driver, maintaining the boat direction and neutralizing the feedback loads on the steering cable. This mechanism is engaged when the driver is not turning the wheel and is automatically disengaged as soon as the driver applies pressure on the wheel to change direction of the boat. The Ultraflex® Non-reversible mechanism designed for mechanical steering systems makes driving a boat safer and easier.

Part No.	Description
83512NFP	12ft M66 Cable, T73NRFC Helm and Bezel Kit
83513NFP	13ft M66 Cable, T73NRFC Helm and Bezel Kit
83514NFP	14ft M66 Cable, T73NRFC Helm and Bezel Kit
83515NFP	15ft M66 Cable, T73NRFC Helm and Bezel Kit
83516NFP	16ft M66 Cable, T73NRFC Helm and Bezel Kit
83517NFP	17ft M66 Cable, T73NRFC Helm and Bezel Kit
83518NFP	18ft M66 Cable, T73NRFC Helm and Bezel Kit

- Kit contains: 90° Bezel **83545**, T73NRFC Helm **83531** and M66 Cable.
- Easy and safe steering: the no feedback design that incorporates a patented Non-reversible mechanism, which eliminates continuous load on the operator caused by propeller torque.
- Fast connect and simple installation.
- All stainless steel cable output ends as per ABYC P17 safety standards.
- Stroke length 228mm (9”).
- Minimum steering cable bend radius 200mm (7.9”).
- Compact rotary helm unit: the central location of the steering shaft makes these systems the most compact in their class.
- Particularly suitable where clearance is limited.
- Ideal for outboards and surfacing propellers.
- Optional 20° bezel kit.
- Standard 3/4” tapered shaft.
- Made exclusively in corrosion resistant materials.
- Steering wheel turns approximately 3.8 times lock to lock.
- Maximum allowable steering wheel diameter 406mm (16”).
- Minimal feedback.
- Compact for mounting.
- The T73NRFC and T74NRFC helm is recommended for use with engines up to around 150hp and a maximum of 225hp.
- For boats exceeding 50mph the twin cable steering system T74NRFC is recommended.
- Exceeds both EN 28848 and ABYC P17 safety standards.

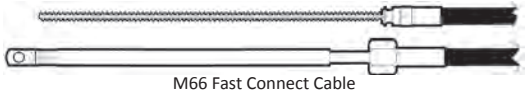
Refer to “Measuring for Replacement Steering Cables” on page 424.

High Performance



T73NRFC Helm - 83531

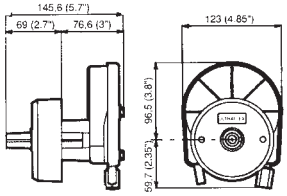
Bezel - 83545



M66 Fast Connect Cable

Mechanical Steering Helms

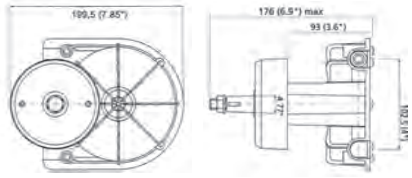
Ultraflex® T67 Helm & Bezel Steering System



Part No.	Description
83524	T67 Helm and Bezel Steering System

- Fast connect and simple installation.
- Corrosion resistant materials.
- Standard friction externally adjustable.
- Includes Black 90° Bezel mounting kit.
- Standard 3/4" tapered shaft.
- Four optional helm positions to facilitate steering cable installation.
- Steering wheel turns approximately 2.5 times lock to lock.
- Maximum allowable steering wheel diameter 380mm (15").
- Uses M58 steering cable.
- For use with outboard engines with a maximum of 55hp.
- Exceeds both EN 29775 and ABYC P17 safety standards.

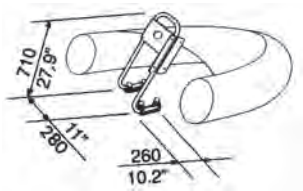
Ultraflex® T85 Rotary Steering Single Cable Helm



Part No.	Description
83525	T85 Rotary Steering Single Cable Helm

- Fast connect and simple installation.
- Corrosion resistant materials.
- Particularly suitable where clearance is limited.
- Steering wheel turns approximately 3 times lock to lock.
- Includes Black 90° Bezel mounting kit (105mm diameter).
- Standard 3/4" tapered shaft.
- Maximum allowable steering wheel diameter: 406 mm (16").
- Minimal feedback.
- Compact for mounting.
- Uses M66 Ultraflex® Cable or a Seastar SSC62 style cable.
- For use with outboard engines around 75hp and a maximum of 115hp.
- Exceeds both EN 28848 and ABYC P17 safety standards.

Ultraflex® P26 Stainless Steel Inflatable Boat Pedestal



Part No.	Description
83523	P26 S/S Pedestal Suit Inflatable Boats

- Inflatable boats floor anchors.
- Stainless steel tubular support with anodized aluminium control box mounting plate.
- Dimensions 260mm x 260mm x 700mm.
- Application: for use with inflatable boats equipped with outboard engines up to 55hp (40 kW).
- Uses M58 steering cable, available in one foot increments.
- Uses **83524** T67 helm.
- Exceeds the EN 28848 safety standards.

NOTE: Steering wheel, helm and steering cable not included.

Ultraflex® T71FC & T72FC Planetary Gear Fast Connect Helms

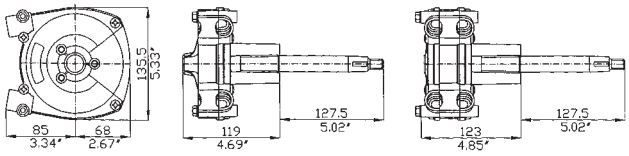
Part No.	Description
83526	T71FC Single Cable Steering Helm, requires bezel kit
83527	T72FC Dual Cable Steering Helm, requires bezel kit

- Fast connect and simple installation.
- Corrosion resistant materials.
- Particularly suitable where clearance is limited.
- Optional 90° or 20° mounting bezel.
- Standard 3/4" tapered shaft.
- Steering wheel turns approximately 3.8 times lock to lock.
- Maximum allowable steering wheel diameter 406mm (16").
- Minimal feedback.
- Compact for mounting.
- The T71FC and T72FC helm is recommended for use with engines around 150hp and a maximum of 225hp.
- For boats exceeding 50mph the twin cable steering system T72FC is recommended.
- Uses M66 Ultraflex® cable or a Seastar SSC62 style cable (the T72FC helm require two cables).
- Exceeds both EN 28848 and ABYC P17 safety standards.

83526

83527

T71FC - T72FC



Ultraflex® T73NRFC & T74NRFC Non-reversible Planetary Gear Fast Connect Helms

Part No.	Description
83531	T73NRFC Single Cable Steering Helm
83528	T74NRFC Dual Cable Steering Helm

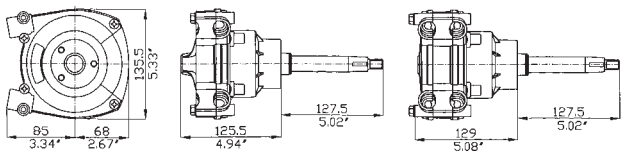
- Easy and safe steering: the no feedback design that incorporates a patented Non-reversible mechanism, which eliminates continuous load on the operator caused by propeller torque.
- Fast connect and simple installation.
- Compact rotary helm unit: the central location of the steering shaft makes these systems the most compact in their class.
- Particularly suitable where clearance is limited.
- Ideal for outboards and surfacing propellers.
- Optional 90° or 20° mounting bezel.
- Standard 3/4" tapered shaft.
- Made exclusively in corrosion resistant materials.
- Steering wheel turns approximately 3.8 times lock to lock.
- Maximum allowable steering wheel diameter 406mm (16").
- Minimal feedback.
- Compact for mounting.
- The T73NRFC and T74NRFC helm is recommended for use with engines around 150hp and a maximum of 225hp.
- For boats exceeding 50mph the twin cable steering system T74NRFC is recommended.
- Uses M66 Ultraflex® cable or a Seastar® SSC62 style cable.
- Exceeds both EN 28848 and ABYC P17 safety standards.

NOTE: Not suitable for power assisted steering, stern drives.

83531

83528

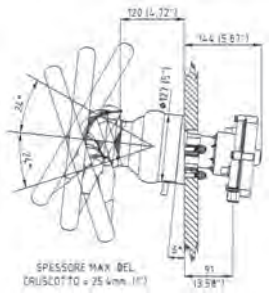
T73NRFC - T74NRFC



Mechanical Steering Helms

Ultraflex® T81FC Tilt Planetary Gear Helm & X52 Tilt Mechanism

High Performance

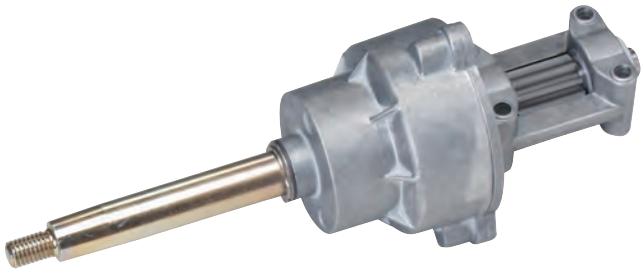


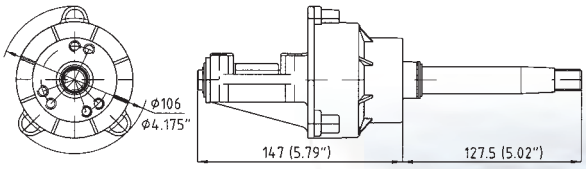
Part No.	Description
83534	T81FC Single Cable Steering Helm (A)
83533	X52 Tilt Mechanism 5 Position (B)

- Tilt range of 48° and five locking positions.
- Fast connect, simple installation.
- Tilt device eliminates under dash movement.
- Standard 3/4” tapered shaft.
- Corrosion resistant materials.
- Lock to lock steering wheel turns approximately 3.8 times.
- Maximum allowable steering wheel diameter 406 mm (16”).
- Uses M66 Ultraflex® cable or a Seastar SSC62 style cable.
- Uses X52 Tilt Mechanism.
- The T81FC helm is recommended for use with engines around 150hp and a maximum of 225hp.
- Exceeds both EN 28848 and ABYC P17 safety standards.

NOTE T81FC Helm and X52 Tilt Mechanism sold separately.

Ultraflex® Rack & Pinion Steering Helms





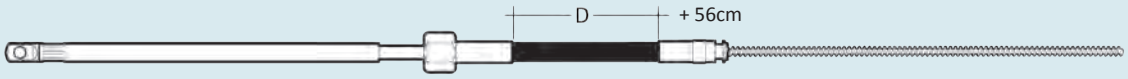
Part No.	Description
82800	G86 Standard Helm
82801	G88NR Non-reversible Helm
82802	G96 Tilt Standard Helm
82803	G98NR Tilt Non-reversible Helm
83533	X52 Tilt Mechanism 5 Position

- Easy and safe steering: the no feedback design that incorporates the patented Non-reversible G88NR and G98NR helms eliminates the continuous load on to the operator caused by the propeller torque.
- Made exclusively in corrosion resistant materials.
- Optional 90° or 20° bezel mounting kits.
- Standard 3/4" tapered shaft.
- Steering wheel turns 3.5 times lock to lock.
- Maximum allowable steering wheel diameter 420 mm (16.5”).
- Uses TM86 Ultraflex® cable or a Seastar SSC124 style cable.
- Exceeds both EN 28848 and ABYC P17 safety standards.
- See “Steering System Selection Guide Recommended and Max HP Rating” on page 424 for recommended and maximum horsepower rating.

Mechanical Steering Cable Replacement Selection Guide

Brand	Helm Model	Cable Marking Model	Replacement Cable P/N	Adaptor Required
UltraFlex®	T67	M58	**83401 to 83407** - M58	-
	T85	M66	**83408 to 83424** M66	-
	T81FC			-
	T71FC			-
	T72FC			-
	T73NRFC			-
	T74NRFC			-
	T71, T72, T73NR, T74NR, T81, T83NR	M47 (Discontinued)	Replace with M66 cable and K66 adaptor	**83535** K66
	G86	TM86	**82812 to 82819** TM86	-
	G88NR			-
	G96			-
	G98NR			-
Morse®	C230®	C315	**83401 to 83407** M58	-
	C231®			-
	D290®	D345, 190845, SSC290	**83408 to 83424** - M66	-
Teleflex®	Quick Connect 3 Turn®	SSC62 or SSC92	**83408 to 83424** M66	-
	Quick Connect 3 Turn Twin®			-
	Quick Connect 4 Turn®			-
	NFB 4.2®			-
	NFB 4.2 Twin®			-
	NFB Safe TII®			-
	Safe TQC®			-
	Safe T®	SSC72	Replace with M66 cable and K66 adaptor	**83535** Model K66
	Big T®			
	Rack®	SSC124	**82812 to 82819** - TM86	-

Measuring For Replacement Steering Cables



D = Conduit length

Order Length: **"D" dimension + 56 cm**

To order in foot length, divide for 30.5 and round up to the next whole foot

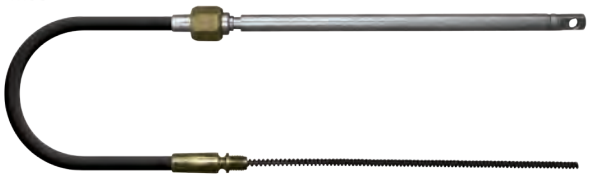
Example: D= 305 cm + 56 cm= 361 : 30.5 = 11'8". Round up to 12 ft

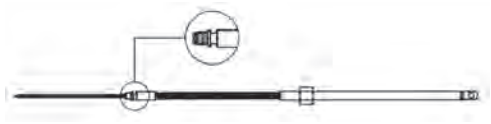
Mechanical Steering Cables

Steering Cables

Ultraflex® M58 Steering Cables

M58





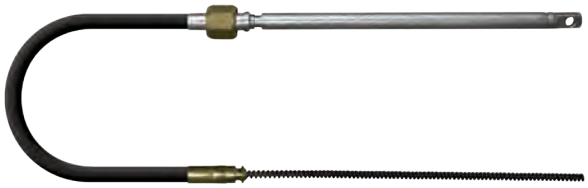
Part No.	Description	Length (m)
83401	8ft M58 Cable	2.44m
83402	9ft M58 Cable	2.74m
83403	10ft M58 Cable	3.05m
83404	11ft M58 Cable	3.35m
83405	12ft M58 Cable	3.66m
83407	15ft M58 Cable	4.57m

- Fast connect and simple installation.
- All stainless steel cable output ends as per ABYC P17 safety standards,
- Attaches directly to the tilt tube on all popular brands.
- Stroke length 230mm (9”).
- Minimum steering cable bend radius 200mm (7.9”).
- Exceeds both EN 29775 and ABYC P17 safety standards.

NOTE: Refer to”Measuring For Replacement Steering Cables” on page 430.

Ultraflex® M66 Fast Connect Steering Cables

M66



M66 Fast Connect Cable

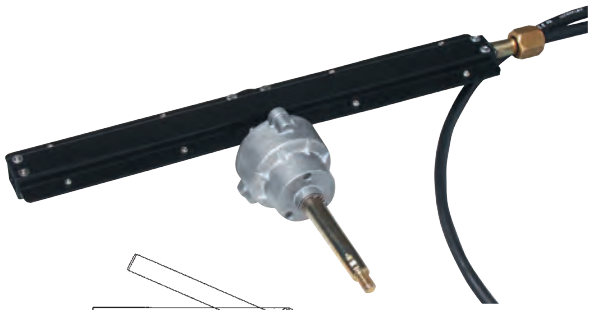
Part No.	Description	Length (m)
83408	8ft M66 Cable	2.44m
83409	9ft M66 Cable	2.74m
83410	10ft M66 Cable	3.05m
83411	11ft M66 Cable	3.35m
83412	12ft M66 Cable	3.66m
83413	13ft M66 Cable	3.96m
83414	14ft M66 Cable	4.27m
83415	15ft M66 Cable	4.57m
83416	16ft M66 Cable	4.88m

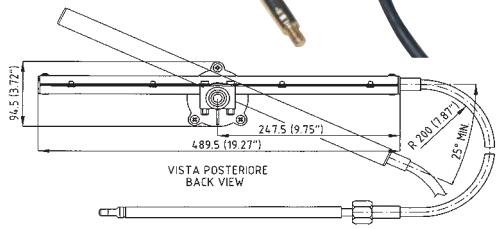
Part No.	Description	Length (m)
83417	17ft M66 Cable	5.18m
83418	18ft M66 Cable	5.48m
83419	19ft M66 Cable	5.79m
83420	20ft M66 Cable	6.10m
83421	21ft M66 Cable	6.40m
83422	22ft M66 Cable	6.71m
83423	23ft M66 Cable	7.01m
83424	24ft M66 Cable	7.32m

- Fast connect and simple installation.
- All stainless steel cable output ends as per ABYC P17 safety standards.
- Attaches directly to the tilt tube on all popular brands.
- Stroke length 228mm (9”).
- Minimum steering cable bend radius 200mm (7.9”).
- The M66 steering cable is also compatible with the Seastar Helms which use the SSC62 style of cable.
- Exceeds both EN 28848 and ABYC P17 safety standards.

NOTE: Refer to “Measuring For Replacement Steering Cables” on page 430

Ultraflex® TM86 Rack & Pinion Cables





Part No.	Description	Length (m)
82812	12ft TM86 Cable	3.66m
82813	13ft TM86 Cable	3.96m
82814	14ft TM86 Cable	4.27m
82815	15ft TM86 Cable	4.57m

Part No.	Description	Length (m)
82816	16ft TM86 Cable	4.88m
82817	17ft TM86 Cable	5.18m
82818	18ft TM86 Cable	5.48m
82819	19ft TM86 Cable	5.79m

- Fast connect and simple installation.
- All stainless steel cable output ends as per ABYC P17 safety standards,
- Stroke length 210mm (8.2”).
- Minimum steering cable bend radius 200mm (7.9”).
- Exceeds both EN 28848 and ABYC P17 safety standards.

NOTE: Rack and Pinion Steering Systems are subject to forward orders only.
Refer to “Measuring For Replacement Steering Cables” on page 430

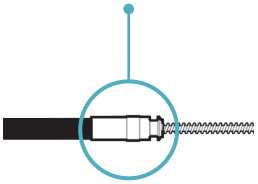
Ultraflex® Steering Cable Adaptors

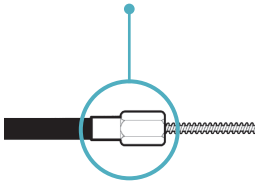
Part No.	Description
83535	K66 Steering Cable Adaptor converts the M66 fast connect into a M47 cable, Nut to Nut Connection
83536	K46 Steering Cable Adaptor converts the M47 Nut to Nut Connection into a M66 fast connect cable

- The K66 Steering Cable Adaptor converts the M66 fast connect cable into a M47 nut to nut cable which accepts the old T71, T72, T73NR T74NR and T81.
- The K46 converts the old M47 nut to nut cable into a M66 fast connect which accepts the T85, T71FC, T72FC, T73NRFC, T74NRFC and T81FC.

83535

83536


M66 Cable


M47 Cable

Ultraflex® Mounting Bezels

Part No.	Description
83545	X34 90° Mounting Kit Black
83540	X35 20° Mounting Kit
83545W	X34 90° Mounting Kit White

- Mounting Bezels to use with T71FC, T72FC, T73, T74, G86 & G88NR Helms.
- Bezel dimensions 130mm diameter x 45mm.

83545

83540

Steering Grommets and Rings

Part No.	Description
83554	Ultraflex® R1 Black Large Grommet
83556	Ultraflex® R2 Black Small Grommet
83557	Ultraflex® R3 Black 2 Hole Grommet
83555	Ultraflex® R4 Black Adjustable Grommet
295092	Round Rapid Fit Trim Ring Kit

- R1 Black - Ø 152 mm - H 110 mm.
- R2 Black - Ø 105 mm (4.1”); H 65 mm.
- R3 Black - 2 holes Ø 105 mm - H 52 mm.
- R4 Black - Adjustable Ø 105 mm - H 68 mm.

83554

83556

83557

83555

295092

High Quality Slop Stoppers & Trim Rings

Part No.	Description
295084	Black oval panel grommet / trim ring
295085	White round panel grommet / trim ring
295086	Black round panel grommet / trim ring
295087	White round slop stopper
295088	Black round slop stopper
295090	Black oval slop stopper

295084

295085

295086

295087

295088

295090

Mechanical Steering Spares & Accessories

Rigging Flange & Hose

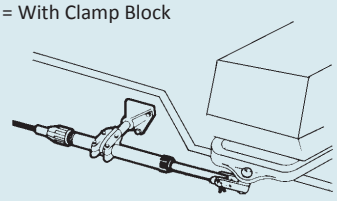
Part No.	Description
76252	1m flexible hose, 1 flanged end & 1 cap. 38mm inner hose dia x 50mm cutout, flange dia 60mm
76250	1m flexible hose, 1 flanged end & 1 cap. 50mm inner hose dia x 71mm cutout, flange dia 100mm
76251	1.5m flexible hose, 1 flanged end & 1 cap. 50mm inner hose dia x 71mm cutout, flange dia 100mm

- This system gives good protection to the service cables of outboard motors against dirt, corrosion and UV damage.
- **76250** and **76251** - 3 holes in flange for 6 gauge mounting screws.
- This system makes the installation tidy and professional.

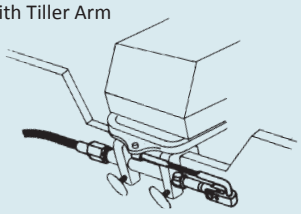
Engine Connection Kit Guide

Installation	Cable Support + Engine Connection Kit	Installation	Cable Support + Engine Connection Kit
A	S39 or S61 or S62 + A75	C	A73 or A74
B	S40 + A75	D	S55 + A75

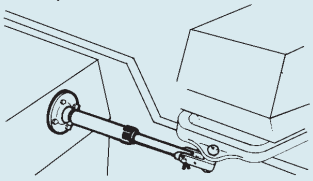
A = With Clamp Block



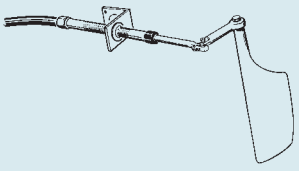
C = With Tiller Arm



B = With Splashwell

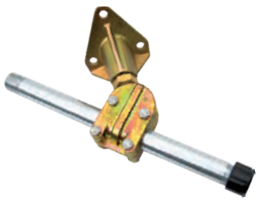


D = With 90° Rudder Support



Ultraflex® Steering Cable Supports

83560



83561

83563

Part No.	Description
83560	S39 Swivel Clamp Block & Tube
83561	S39SS Swivel Clamp Block & S/S Tube
83563	S39T Tube Only suits 83560 & 83561

- S39 Swivel clamp block in marine aluminium with marine aluminium tube.
- S39SS Steering cable supports with stainless steel tube.
- S39T Marine aluminium Tube suits 83560 & 83561.

Ultraflex® Steering Cable Supports

Part No.	Description
83835	S40 Splashwell Mounting
83837	S40T Tube Only suits 83835

- S40 Marine aluminium tube and 79mm stainless steel splashwell mounting.
- S40 Includes 6mm mounting bolts.
- S40T Marine aluminium tube suits 83835.

83835

83837

Ultraflex® Steering Cable Supports

Part No.	Description
83616	S55 90° Rudder Support

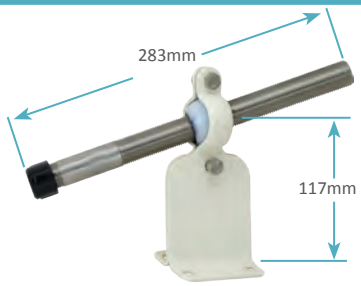
- S55 Corrosion resistant 90° rudder support, with marine aluminium tube.

83616

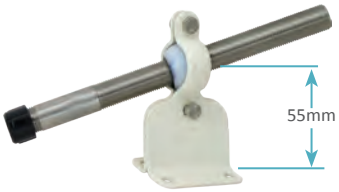
Ultraflex® Steering Cable Supports

Part No.	Description	Height
83566	S61 Transom Mount Kit	117mm
83564	S62 Transom Mount Kit	55mm

- Corrosion resistant painted steel clamp block.
- Stainless Steel Tube length is 283mm.
- S61 supplied with a stainless steel tube
- S62 supplied with a marine aluminium tube



83566



83564

Ultraflex® Engine Connection Kits

Part No.	Description
83570	A73SS Stainless Steel Tiller Drag Link Arm suits Mercury® Outboard Engines
83575	A74SS Stainless Steel Tiller Drag Link Arm suits Johnson®, Evinrude® Outboard Engines
83580	A75 Stainless Steel Clevis suits M66 Cable

- The A73SS and A74SS stainless steel drag link arm has an adjustable end to accommodate the centring of the motor.

WARNING: A73 and A74 tiller arms are recommended for mechanical steering systems only.

83570

83575

Steering Cable Installation Kit

Part No.	Description
83580	A75 Stainless Steel Clevis suits M66 Cable
83591	Quick Release Stainless Steel Ball Joint Clevis suits M66 Cable

- The Swivel Assembly suits transom mounted and splash well installation, allows the motor to be tilted without damaging to the cable.

83580

83591

Ultraflex® Steering Cable Installation Kit

Part No.	Description
84105	Cable Installation Kit suits T71, T73, T81 and T83 Helms
84100	Nylon Bush To Connect Spent Tube To Fast Connect Helm

84105

84100

Hydraulic Steering Systems

Hydraulic Steering Introduction & Cross Reference

Ultraflex® Hydraulic Steering Systems

Hydraulic Steering Systems

All the components of Ultraflex® hydraulic steering systems are made specifically for the marine environment, using materials and working process which offer long life and safety for the most extreme conditions.

How The System Works

A hydraulic steering system consists of a steering pump, a cylinder tied to the rudder or to the outboard or sterndrive engine and the connecting nylon or copper tubing. Under normal operating conditions, a turn of the steering wheel will send the oil from the helm into one of the two connecting hydraulic lines. The oil will be pumped into one of the chambers and either extend or retract the cylinder rod, depending on the steering wheel rotation. The fluid going out from the other chamber of the cylinder is returned to the helm via the other hydraulic line. There are two basic components in all the hydraulic steering systems: the helm unit and the cylinder, by flexible nylon hose or copper tubing. The helm unit consists of both a hydraulic pump and a valve assembly. The valve assembly prevents outgoing fluid from returning along the same line, isolates each steering station, locks the rudder and eliminates rudder "feedback" to the helm. The cylinders are double acting and may be balanced or unbalanced (in which case the rod extends through only one end of the cylinder).

Suggestions and Warnings When Selecting A Hydraulic Steering System

The strength required to drive a boat equipped with a hydraulic steering system is inversely proportional to the number of turns of the wheel lock-to-lock. The wheel turns are determined by the ratio between the cylinder volume, pump displacement. With the same type of cylinder installed on the engine, the less are the turns, the faster is the response but higher is the effort; more wheel turns, slower is the response and lower is the effort.

Other factors that can influence steering effort are:

- Vessel speed
- Rudder dimension, or engine power
- Propeller selection
- Hull type (displacement, planing, etc.)
- Sea conditions
- Oil viscosity

Cross Reference

This Cross Reference chart has been drawn to facilitate a functional comparison among brands and should be used as general reference only.

For further information please contact our Technical Service at Sam Allen Wholesale

HELM PUMPS	
ULTRAFLEX®	TELEFLEX®
UP20 F	BayStar™ HH4314
UP20 T	BayStar™ HH4315
UP25 F	Seastar™ 1.7 HH5269
UP25NV F	Seastar™ 1.7 HH5761
UP25 T	Seastar™ 1.7 HH5744
UP28 F	Seastar™ 1.7 HH5271
UP28 T	Seastar™ 1.7 HH5741
UP28 R	Seastar™ 1.7 HH5261
UP33 F	Seastar™ 2.0 HH5273
UP33NV F	Seastar™ 2.0 HH5760
UP33 T	Seastar™ 2.0 HH5743
UP33 R	-

HELM PUMPS	
ULTRAFLEX®	TELEFLEX®
UP39 F	Seastar™ 2.4 HH5272
UP39 T	Seastar™ 2.4 HH5742
UP39 R	Seastar™ 2.4 HH5262
UP45 F	-
UP45 T	-
UP45 R	-
UP28 F-SVS	Seastar™ PRO - HH5779
UP28 T-SVS	Seastar™ PRO - HH5773
UP33 F-SVS	Seastar™ PRO - HH5770
UP33 T-SVS	Seastar™ PRO - HH5774
UP39 F-SVS	Seastar™ PRO - HH5772
UP39 T-SVS	Seastar™ PRO - HH6189

CYLINDERS	
ULTRAFLEX®	TELEFLEX®
UC94-OBF	Seastar™ HC4645
UC128-OBF	Seastar™ HC5345
UC128-SVS	Seastar™ HC5345
UC68-OBS	-
UC132-OBS	Seastar™ HC5370
UC69-I	-
UC116-1	Seastar™ HC5312
UC168-I	Seastar™ HC5318
UC215-I	Seastar™ HC5319
UC293-I	-
UC378-I	-

How To Measure Steering Wheel Turns

How To Measure Steering Wheel Turns when Selecting a helm pump for a cylinder*

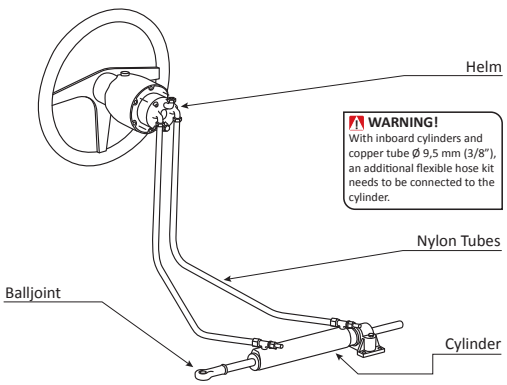
Divide the volume of the cylinder in cubic centimetres (cc) by the volume of the helm pump in cubic centimetres (cc) equals the number of turns lock to lock.

Example: Cylinder volume = 132cc — 132 ÷ 25 = 5.28 turn
Helm pump volume = 25cc — Round off to 5.3 turns

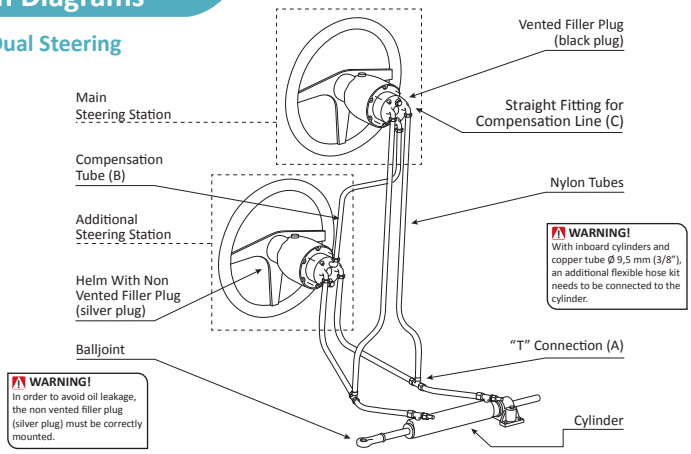
**NOTE: When selecting the right helm pump for cylinder please consult our technical service department*

Single and Dual Steering Station Installation Diagrams

Single Steering


Helm
WARNING!
With inboard cylinders and copper tube Ø 9,5 mm (3/8"), an additional flexible hose kit needs to be connected to the cylinder.
Nylon Tubes
Balljoint
Cylinder

Dual Steering


Vented Filler Plug (black plug)
Straight Fitting for Compensation Line (C)
Main Steering Station
Compensation Tube (B)
Nylon Tubes
Additional Steering Station
WARNING!
With inboard cylinders and copper tube Ø 9,5 mm (3/8"), an additional flexible hose kit needs to be connected to the cylinder.
Helm With Non Vented Filler Plug (silver plug)
Balljoint
"T" Connection (A)
WARNING!
In order to avoid oil leakage, the non vented filler plug (silver plug) must be correctly mounted.
Cylinder

Ultraflex® Gotech Hydraulic Steering Kits

up to 115hp - 4.5 Wheel Turns

Kit Part No.	Description
83918/1	Gotech Hydraulic Steering Kit with UC81-OBF/1 Cylinder

- For outboard single engine up to 115 hp.
- 4.5 turns lock to lock, balanced.
- Outboard Front Mount cylinder (Refer to chart below).
- Hose included.

Kits Contains:
1 x Helm Pump - **UP18**
1 x Front mount outboard Cylinder - **UC81-OBF**
2 x 1 litres hydraulic oil - **OL 150**
1 x Hose kit - 1/4" dia x 6m (19.7") length - **KIT OB-GT/M**

NOTE: Steering wheel not included in kit.

Engine Application Guide for Gotech 1 Hydraulic Steering Kit

Engine	Power	Year	Cylinder	Kit
Evinrude®	E40-E50-E55-E60 2T E75-E90 2T E115 2T V4	2004-today 2004-today 1995-today	UC81-OBF/1	83918/1
Honda®	BF40-50-60-75-90 4T BF115D BF115A BF90 V-TEC 4T	1995-today 1998-2009 2009-today 2008-today	UC81-OBF/1	83918/1
Johnson®	BJ60-70 4T BJ90-115 4T J90-115 V4 2T	2001-2007 2001-2007 1995-2007	UC81-OBF/1	83918/1
Mercury® Mariner®	50 – 75 – 90 2T 115 EFI 2T 75 – 90 – 115 Optimax 2T 40 – 50 – 60 EFI 4T 75 – 80 – 90 EFI 4T 100 – 115 EFI 4T	1990-2008 1990-2007 2004-today 2004-today 2000-today 2007-today	UC81-OBF/1	83918/1
Suzuki®	DF40-50-60-70-80-90 4T DF100-115 4T* DF100-115 4T new model	1998-today 1998-2008 2008-today	UC81-OBF/1	83918/1
Tohatsu® Nissan®	40-50-60-70-90 2T 75-115 2T 40-50TLDI 4T 70-90-115 TLDI 4T	2004-today	UC81-OBF/1	83918/1

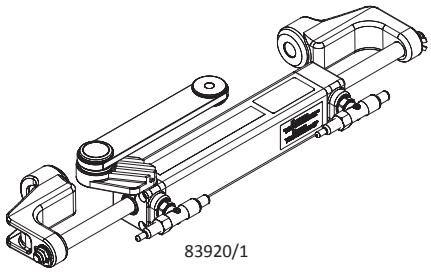
Engine	Power	Year	Cylinder	Kit
Selva®	40XS-50 Madeira 2T 40XS-50 Bull shark 2T 40XS-60 Grey shark 2T 40XS-70 Mako Shark 2T 40XS-60 St.Tropez 2T 80 Portofino/Tigershark 2T 25 Kingfish 4T 40 Aruana 4T 40XS-40XSR-50-60 Dorado EFI 4T 40XSR EFI Murena 4T 80XS-100-100XSR EFI Marlin 4T 115-115XSR EFI Tarpon 4T 115 EFI Narwhal 4T	1995-today 2000-today	UC81-OBF/1	83918/1
Yamaha®	60-70 2T 75C-90 2T 115C 2T F40G-F70 4T F30-F40-F60-F75-F80 EFI 4T F90-F100-F115 EFI 4T F80-F100 4T F115 F40D-F50F-F60C EFI 4T	1984-2008 1998-2008 1990-2008 2010-today 1999-2007 1999-2007 2000-today 2004-today	UC81-OBF/1	83918/1

NOTE: Suzuki® engines built from 1998 to 2008 installing UC81-OBF cylinder require optional KIT SU -* **83919

Hydraulic Steering Kits

Ultraflex® HYCO-OBF Hydraulic Steering System Kit

up to 150hp - 4.7 Wheel Turns



83920/1

Kit Part No.	Description
83920/1	HYCO-OBF Hydraulic Steering Kit with UC94-OBF/1 Cylinder*
83920/3	HYCO-OBF Hydraulic Steering Kit with UC94-OBF/3 Cylinder*

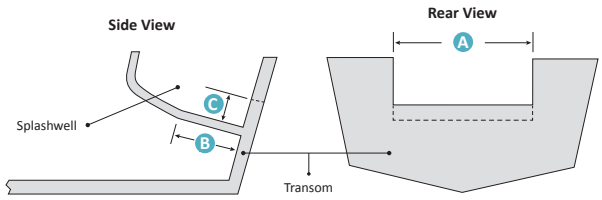
- For outboard engines up to 150 hp.
- 4.7 turns lock to lock, balanced.
- For Honda® BF115 and BF130 and Mercury® Optimax 75, 90, 115 use **83920/3 -** UC94-OBF/3.
- Hose not included*.

Kits Contains:

- Front mount cylinder (Refer to chart below).
- **83920** - UP20F front mount helm pump.
- **84115** - 1 litre hydraulic oil x 2.

NOTE: Refer to "Hydraulic Hoses" on page 442. Steering wheel not included in kit.

Engine splashwell dimensions



Splashwell Dimension Requirements			
No. of Engines	**A**	**B**	**C**
1	540 mm - 21.25"	152 mm - 5.98"	152 mm - 5.98"
2*	1110 mm - 43.70"	152 mm - 5.98"	152 mm - 5.98"

*NOTE: For twin engine applications, the minimum distance between the two engine centres is 550 mm (21.6")

Engine Application Guide for UC94-OBF Hydraulic Steering Kit

Engine	Power	Year	Cylinder	Kit
Evinrude®	E40-E50-E55-E60 2 Stroke	2004-to date	UC94-OBF/1	**83920/1**
	E75-E90 2 Stroke	1995-to date	UC94-OBF/1	**83920/1**
	E115-E130-E135 2 Stroke V4	1995-to date	UC94-OBF/1	**83920/1**
	E150 2 Stroke V6	1995-to date	UC94-OBF/1	**83920/1**
Honda®	BF75-BF90 4 Stroke	1995-to date	UC94-OBF/1	**83920/1**
	BF115D	1998-2009	UC94-OBF/3	**83920/3**
	BF115A	2009-to date	UC94-OBF/1	**83920/1**
	BF130A	1998-2005	UC94-OBF/3	**83920/3**
	BF135-BF150 4 Stroke	2005-to date	UC94-OBF/1	**83920/1**
	BF90-BF150 V-TEC 4 Stroke	2008-to date	UC94-OBF/1	**83920/1**
Johnson®	BJ60-70 4 Stroke	2001-2007	UC94-OBF/1	**83920/1**
	BJ90-115-140 4 Stroke	2001-2007	UC94-OBF/1	**83920/1**
	J90-115 V4 2 Stroke	1995-2007	UC94-OBF/1	**83920/1**
Mercury® Mariner®	50 – 75 – 90 2 Stroke	1990-2008	UC94-OBF/1	**83920/1**
	115 – 125 – 150 EFI 2 Stroke	1990-2007	UC94-OBF/1	**83920/1**
	75 – 90 – 115 - 125 Optimax 2 Stroke	2004-to date	UC94-OBF/3	**83920/3**
	135 – 150 Optimax 2 Stroke	1999-to date	UC94-OBF/1	**83920/1**
	40 – 50 – 60 EFI 4 Stroke	2004-to date	UC94-OBF/1	**83920/1**
	75 – 80 – 90 EFI 4 Stroke	2000-to date	UC94-OBF/1	**83920/1**
	100 – 115 EFI 4 Stroke	2007-to date	UC94-OBF/1	**83920/1**
Suzuki®	DF70-80-90 4 Stroke	1998-to date	UC94-OBF/1	**83920/1**
	DF100-115-140 4 Stroke*	1998-2008	UC94-OBF/1	**83920/1**
	DF100-115-140 4 Stroke new model	2008-to date	UC94-OBF/1	**83920/1**
	DF150 4 Stroke	2006-to date	UC94-OBF/1	**83920/1**

Engine	Power	Year	Cylinder	Kit
Selva®	50 Madeira/ Bull shark-60 Grey	–	–	–
	Shark/St.tropez- 70 Mako Shark 2 Stroke	–	UC94-OBF/1	**83920/1**
	80 Portofino/Tigershark 2 Stroke	1995-2008	UC94-OBF/1	**83920/1**
	150 White Shark 2 Stroke	2001-2007	UC94-OBF/1	**83920/1**
	50-60 Dorado EFI 4 Stroke	–	UC94-OBF/1	**83920/1**
	100 EFI Marlin -115 EFI Narwhal-150EFI	2000-to date	UC94-OBF/1	**83920/1**
	Killer Whale 4 Stroke	–	–	–
Tohatsu® Nissan®	50-60-70-90 2 Stroke	2004-to date	UC94-OBF/1	**83920/1**
	115-120-140 2 Stroke	2004-to date	UC94-OBF/1	**83920/1**
	40-50TLDI 4 Stroke	2004-to date	UC94-OBF/1	**83920/1**
	70-90-115 TLDI 4 Stroke	2004-to date	UC94-OBF/1	**83920/1**
Yamaha®	60-70 2 Stroke	1984-2008	UC94-OBF/1	**83920/1**
	75C-90 2 Stroke	1998-2008	UC94-OBF/1	**83920/1**
	115C-130B 2 Stroke	1990-2008	UC94-OBF/1	**83920/1**
	150F	1996-2007	UC94-OBF/1	**83920/1**
	150 HPDI VMAX 2 Stroke	2000-2008	UC94-OBF/1	**83920/1**
	F60-F75-F80 EFI 4 Stroke	1999-2007	UC94-OBF/1	**83920/1**
	F90-F100-F115-F150 EFI 4 Stroke	1999-2007	UC94-OBF/1	**83920/1**
	F80-F100 4 Stroke	2000-to date	UC94-OBF/1	**83920/1**
	F115-F150	2004-to date	UC94-OBF/1	**83920/1**

NOTE: Suzuki® engines built from 1998 to 2008 installing UC94-OBF/1 cylinder require optional KIT SU -* **83919

Ultraflex® Nautech 1 Hydraulic Steering Kits

up to 300hp - 4.3 Wheel Turns

Kit Part No.	Description
83915/1	Nautech 1 Hydraulic Steering Kit with UC128-OBF/1 Cylinder*
83915/2	Nautech 1 Hydraulic Steering Kit with UC128-OBF/2 Cylinder*
83915/3	Nautech 1 Hydraulic Steering Kit with UC128-OBF/3 Cylinder*

- For outboard engines up to 300 hp.
- 4.3 turns lock to lock, balanced.
- Hose not included*.

Kits Contains:

- Outboard Front Mount cylinder (Refer to chart below).
- **83928** - UP28F front mount helm pump.
- **84115** - 1 litre hydraulic oil x 2.

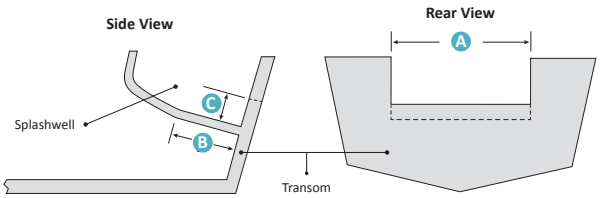
For Additional Station Add:

- **83928** Helm Pump x 1.
- **84120** Fitting kit x 1.
- **84115** - 1 litre hydraulic oil x 1.

NOTE: Refer to "Hydraulic Hoses" on page 442. Steering wheel not included in kit.

Splashwell Dimension Requirements			
No. of Engines	**A**	**B**	**C**
1	560 mm - 22.05"	152 mm - 5.98"	152 mm - 5.98"
2*	1110 mm - 43.70"	152 mm - 5.98"	152 mm - 5.98"
*NOTE: For twin engine applications, the minimum distance between the two engine centres is 550 mm (21.6")			

Engine splashwell dimensions



Engine Application Guide for Nautech 1 Hydraulic Steering Kit

Engine	Power	Year	Cylinder	Kit
Evinrude®	E75-E90 2 Stroke	2004-to date	UC128-OBF/2	83915/2
	E115-E130-E135 2Stroke V4	1995-to date	UC128-OBF/2	83915/2
	E150-E175-E200 2Stroke V6	1995-to date	UC128-OBF/2	83915/2
	E200 HO- E225-E250 2 Stroke V6	1995-to date	UC128-OBF/2	83915/2
	E250 HO- E300 2 Stroke V6		UC128-OBF/2	83915/2
Honda®	BF75-90 4 Stroke	1995-to date	UC128-OBF/1	83915/1
	BF115D	1998-2009	UC128-OBF/3	83915/3
	BF115A	2009-to date	UC128-OBF/1	83915/1
	BF130A	1998-2005	UC128-OBF/3	83915/3
	BF135-150 4 Stroke	2005-to date	UC128-OBF/1	83915/1
	BF90-BF150 V-TEC 4 Stroke	2008-to date	UC128-OBF/1	83915/1
	BF175-200-225 4 Stroke	2001-to date	UC128-OBF/1	83915/1
Johnson®	BJ90-115-140 4 Stroke	2001-2007	UC128-OBF/1	83915/1
	J90-115 V4 2 Stroke	1995-2007	UC128-OBF/2	83915/2
	J150-175 V6 2 Stroke	1995-2007	UC128-OBF/2	83915/2
	J200-225 V6 4 Stroke	2004-2007	UC128-OBF/2	83915/2
Mercury® Mariner®	75-90-115-125 Optimax 2 Stroke	2004 to date	UC128-OBF/3	83915/3
	135-150-175 Optimax 2 Stroke	1999 to date	UC128-OBF/1	83915/1
	200-225-250 Optimax 2 Stroke	1999 to date	UC128-OBF/1	83915/1
	RACING 300 Optimax 2 Stroke	–	UC128-OBF/1	83915/1
	100-115 EFI 4 Stroke	2007 to date	UC128-OBF/1	83915/1
	115-125-150 EFI 2 Stroke	1990 - 2007	UC128-OBF/1	83915/1
	225-250 EFI 2 Stroke	2000 - 2007	UC128-OBF/1	83915/1
	250 Saltwater EFI 4 Stroke	2007 to date	UC128-OBF/1	83915/1
	135-150-175-200 Verado L4 4 Stroke	2004 - 2006	UC128-OBF/1	83915/1

Engine	Power	Year	Cylinder	Kit
Suzuki®	DF70-80-90 4 Stroke	1998-to date	UC128-OBF/2	83915/2
	DF100-115-140 4 Stroke	1998-2008	UC128-OBF/1	83915/1
	DF100-115-140 4 Stroke (new model)	2008-to date	UC128-OBF/1	83915/1
	DF150-175 4 Stroke	2006-to date	UC128-OBF/1	83915/1
	DF200-DF225-DF250-DF300		UC128-OBF/2	83915/2
Selva®	80 Portofino/Tigershark 2 Stroke	1995-to date	UC128-OBF/1	83915/1
	150 White Shark 2 Stroke			
	100EFI Marlin -115 EFI Narwhal-	2001-2007	UC128-OBF/2	83915/2
	150EFI Killer Whale 4 Stroke	2000-to date	UC128-OBF/1	83915/1
Tohatsu® Nissan®	115-120-140 2 Stroke	2004-to date	UC128-OBF/2	83915/2
	70-90-115 TLDI 4 Stroke	2004-to date	UC128-OBF/1	83915/1
Yamaha®	75C-90 2 Stroke	1998-2008	UC128-OBF/2	83915/2
	115C-130B 2 Stroke	1990-2008	UC128-OBF/2	83915/2
	150F-200F-250G 2 Stroke	1996-2007	UC128-OBF/2	83915/2
	150 HPDI VMAX 2 Stroke	2000-2008	UC128-OBF/2	83915/2
	175-200-225-250-300 HPDI VMAX 2 Stroke	2000-2008	UC128-OBF/2	83915/2
	F70 4 Stroke	2010-to date	UC128P-OBF/1	–
	F90-F100-F115-F150 EFI 4 Stroke	1999-2007	UC128-OBF/1	83915/1
	F200-F225-F250 4 Stroke	2002-2007	UC128-OBF/2	83915/2
	F115-F150	2004-to date	UC128-OBF/1	83915/1
	F200-F225-F250-F300 4 Stroke	2006-to date	UC128-OBF/2	83915/2
	F350 4 Stroke	2008-to date	see UC128-SVS	–

NOTE: Suzuki® engines built from 1998 to 2008 installing UC128-OBF/1 cylinder require optional KIT SU -* **83919

Hydraulic Steering Kits

Ultraflex® Nautech 3 Hydraulic Steering Kits

up to 300hp - 4.8 Wheel Turns

Kit Part No.	Description
83910/1	Nautech 3 Hydraulic Steering Kit with UC128-OBF/1 Cylinder*
83910/2	Nautech 3 Hydraulic Steering Kit with UC128-OBF/2 Cylinder*

- For outboard engines up to 300 hp.
- 4.8 turns lock to lock, balanced.
- Hose not included*.

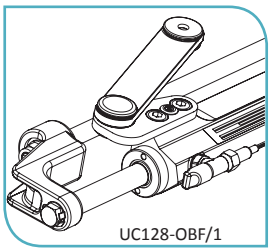
Kits Contains:

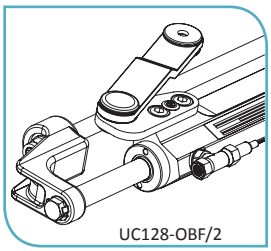
- Outboard front mount cylinder (Refer to chart below).
- **83925** - UP25F front mount helm pump.
- **84115** - 1 litre hydraulic oil x 2.

For Additional Station Add:

- **83925** - Helm Pump x 1.
- **84120** - Fitting kit x 1.
- **84115** - 1 litre hydraulic oil x 1.

NOTE: Refer to "Hydraulic Hoses" on page 442. Steering wheel not included in kit.


UC128-OBF/1


UC128-OBF/2

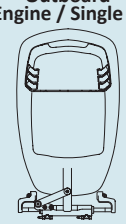
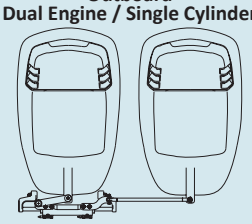
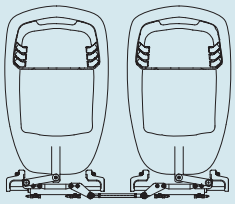
Engine Application Guide for Nautech 3 Hydraulic Steering Kit

Engine	Power	Year	Cylinder	Kit
Evinrude®	E75-E90 2 Stroke	2004-to date	UC128-OBF/2	**83910/2**
	E115-E130-E135 2Stroke V4	1995-to date	UC128-OBF/2	**83910/2**
	E150-E175-E200 2Stroke V6	1995-to date	UC128-OBF/2	**83910/2**
	E200 HO- E225-E250 2 Stroke V6	1995-to date	UC128-OBF/2	**83910/2**
	E250 HO- E300 2 Stroke V6		UC128-OBF/2	**83910/2**
Honda®	BF75-90 4 Stroke	1995-to date	UC128-OBF/1	**83910/1**
	BF115D	1998-2009	UC128-OBF/3	–
	BF115A	2009-to date	UC128-OBF/1	**83910/1**
	BF130A	1998-2005	UC128-OBF/3	–
	BF135-150 4 Stroke	2005-to date	UC128-OBF/1	**83910/1**
	BF90-BF150 V-TEC 4 Stroke	2008-to date	UC128-OBF/1	**83910/1**
	BF175-200-225 4 Stroke	2001-to date	UC128-OBF/1	**83910/1**
Johnson®	BJ90-115-140 4 Stroke	2001-2007	UC128-OBF/1	**83910/1**
	J90-115 V4 2 Stroke	1995-2007	UC128-OBF/2	**83910/2**
	J150-175 V6 2 Stroke	1995-2007	UC128-OBF/2	**83910/2**
	J200-225 V6 4 Stroke	2004-2007	UC128-OBF/2	**83910/2**
Mercury® Mariner®	75-90-115-125 Optimax 2 Stroke	2004 to date	UC128-OBF/3	–
	135-150-175 Optimax 2 Stroke	1999 to date	UC128-OBF/1	**83910/1**
	200-225-250 Optimax 2 Stroke	1999 to date	UC128-OBF/1	**83910/1**
	RACING 300 Optimax 2 Stroke	–	UC128-OBF/1	**83910/1**
	100-115 EFI 4 Stroke	2007 to date	UC128-OBF/1	**83910/1**
	115-125-150 EFI 2 Stroke	1990 - 2007	UC128-OBF/1	**83910/1**
	225-250 EFI 2 Stroke	2000 - 2007	UC128-OBF/1	**83910/1**
	250 Saltwater EFI 4 Stroke	2007 to date	UC128-OBF/1	**83910/1**
	135-150-175-200 Verado L4 4 Stroke	2004 - 2006	UC128-OBF/1	**83910/1**

Engine	Power	Year	Cylinder	Kit
Suzuki®	DF70-80-90 4 Stroke	1998-to date	UC128-OBF/2	**83910/2**
	DF100-115-140 4 Stroke*	1998-2008	UC128-OBF/1*	**83910/1***
	DF100-115-140 4 Stroke (new model)	2008-to date	UC128-OBF/1	**83910/1**
	DF150-175 4 Stroke	2006-to date	UC128-OBF/1	**83910/1**
	DF200-DF225-DF250-DF300		UC128-OBF/2	**83910/2**
Selva®	80 Portofino/Tigershark 2 Stroke	1995-to date	UC128-OBF/1	**83910/1**
	150 White Shark 2 Stroke			
	100EFI Marlin -115 EFI Narwhal-	2001-2007	UC128-OBF/2	**83910/2**
	150EFI Killer Whale 4 Stroke	2000-to date	UC128-OBF/1	**83910/1**
Tohatsu® Nissan®	115-120-140 2 Stroke	2004-to date	UC128-OBF/2	**83910/2**
	70-90-115 TLDI 4 Stroke	2004-to date	UC128-OBF/1	**83910/1**
Yamaha®	75C-90 2 Stroke	1998-2008	UC128-OBF/2	**83910/2**
	115C-130B 2 Stroke	1990-2008	UC128-OBF/2	**83910/2**
	150F-200F-250G 2 Stroke	1996-2007	UC128-OBF/2	**83910/2**
	150 HPDI VMAX 2 Stroke	2000-2008	UC128-OBF/2	**83910/2**
	175-200-225-250-300 HPDI VMAX 2 Stroke	2000-2008	UC128-OBF/2	**83910/2**
	F70 4 Stroke	2010-to date	UC128P-OBF/1	–
	F90-F100-F115-F150 EFI 4 Stroke	1999-2007	UC128-OBF/1	**83910/1**
	F200-F225-F250 4 Stroke	2002-2007	UC128-OBF/2	**83910/2**
	F115-F150	2004-to date	UC128-OBF/1	**83910/1**
	F200-F225-F250-F300 4 Stroke	2006-to date	UC128-OBF/2	**83910/2**
	F350 4 Stroke	2008-to date	see UC128-SVS	–

NOTE: Suzuki® engines built from 1998 to 2008 installing UC128-OBF/1 cylinder require optional KIT SU -* **83919

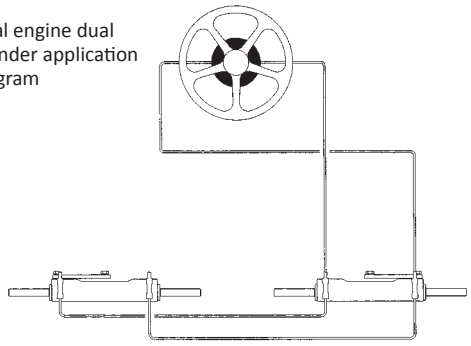
Ultraflex® Nautech Hydraulic Steering Ordering Guide

System	Application	Wheel Turns	Components	Model	Part No.	Qty
Outboard Single Engine / Single Cylinder 	*up to 300hp Maximum*	4.8 (UP25) 4.3 (UP28)	Cylinder	UC128-OBF	83913/1	1
			Helm pump*	UP25* or UP28*	83925* or 83928*	1
			Hose	See hose options	See hose options	1
			Oil	OIL 15	84115	2
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP25 or UP28, 1 x KIT OB-2S fitting kit, 1 x Hose, 1 x OIL 15, 1 x steering wheel						
Outboard Dual Engine / Single Cylinder 	*up to 300hp Maximum* (non-counter rotating engine) *up to 500hp Maximum* (counter rotating engine)	4.8 (UP25) 4.3 (UP28) 3.6 (UP33)	Cylinder	UC128-OBF	83913/1	1
			Helm pump*	UP25* / UP28* / UP33*	83925* / 83928* / 83933*	1
			Hose	See hose options	See hose options	1
			Oil	OIL 15	84115	2
			Tie bar	A94 or A88	84194 or 84188	1
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP25, UP28 or UP33, 1 x KIT OB-2S fitting kit, 1 x Hose, 1 x OIL 15, 1 x steering wheel						
Outboard Dual Engine / Dual Cylinder 	*up to 500hp Maximum* (non-counter rotating engines) *up to 600hp Maximum* (counter rotating engines)	6.1 (UP39)	Cylinder Cylinder port	UC128-OBF UC128P-OBF	83913/1 83913/1P	1 1
			Helm pump*	UP39*	83939*	1
			Tie bar	A90	84190	1
			Oil	OIL 15	84115	2
			Hose	See hose options	See hose options	1
			Connection kit	KIT OB-2C	See hose options	1
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP39, 1 x hose fitting kit, 1 x hose, 2 x **84118** TF38 fittings, 1 x OIL 15, 1 x steering wheel						
*NOTE Helm pumps are available in tilt, front and rear options, Refer to "Hydraulic Helm Pumps" on page 459						

NOTE: For high performance applications SilverSteer™ systems are recommended.

WARNING: The UC128-OBF front mount cylinder is not recommended for use in installations where the boat speed exceeds 50 mph (50 knots) (60 mph (60 knots) in dual engine, dual cylinder and counter rotating engines application). Not intended for use in racing application.

Dual engine dual cylinder application diagram

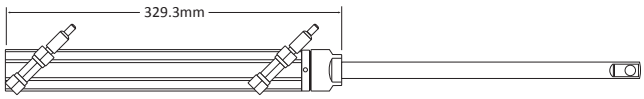


Three outboard engine applications are available with UC128-OBF cylinder. For further information, contact a sales representative at Sam Allen Wholesale.

Hydraulic Steering Kits

Ultraflex® UC68-OBS Outboard Side Mount Cylinder Steering Kit

up to 150hp - 3.4 or 5 Wheel Turns



Kit Part No.	Description
83908	Side Mount Cylinder Kit*

- For outboard engines up to 150 hp.
- 3.4 or 5 turns lock to lock, unbalanced - the number of turns lock to lock is not equal port to starboard and vice-versa.
- UC68-OBS side mount cylinder features a Patented turning nut for a fast and easy installation to the engine tube.
- Clearance required at the engine tube side is 340mm.
- Recommended for use where maximum boat speed do not exceed 40 mph (40 knots).
- Hose not included*.

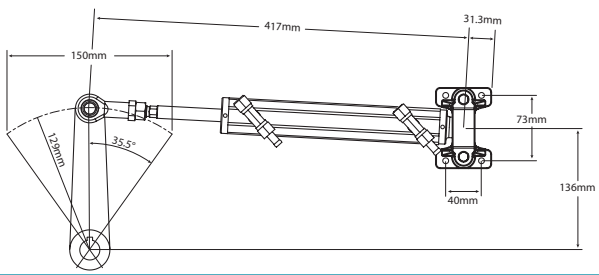
Kits Contains:

- **83908C** - UC68-OBS side mount cylinder.
- **83920** - UP20F front mount helm pump.
- **84115** - 1 litre hydraulic oil x 2.

NOTE: Refer to "Hydraulic Hoses" on page 442. Steering wheel not included in kit.

Hydraulic Steering System Ordering Guide							
System	**Application**	**Wheel Turns**	**Components**	**Model**	**Part No.**	**Qty**	**Kits**
Outboard Single engine single cylinder	Up to 150hp maximum	3.4 or 5 turns lock to lock	Cylinder Helm pump Hydraulic Oil	UC68-OBS UP20 OIL 15	83908C 83920 84115	1 1 2	83908
			Hose Steering Wheel	Refer to"Hydraulic Hoses" on page 442page 442 Refer to wheel selection starting from page 417	Hose options Wheel options	1 1	Not Included

Ultraflex® HYCO-I Inboard Hydraulic Steering Kit



Kit Part No.	Description
83940	HYCO-1 Inboard Hydraulic Kit*

- For inboard engines.
- 3.5 turns lock to lock, balanced.
- HYCO-I steering system is suitable for inboard boats up to 8m (26ft) length and 25mph maximum speed.
- Hose not included*.

Kits Contains:

- **83959** - UC69-I Inboard cylinder.
- **83920** - UP20F front mount helm pump.
- **84115** - 1 litre hydraulic oil x 2.

NOTE: Refer to "Hydraulic Hoses" on page 442page 442. Steering wheel not included in kit.

Hydraulic Steering System Ordering Guide							
System	**Application**	**Wheel Turns**	**Components**	**Model**	**Part No.**	**Qty**	**Kits**
Inboard	Inboards up to 8m (26ft) length and 25mph maximum speed.	3.5 turns	Cylinder Helm pump Hydraulic Oil	UC69-I UP20 OIL 15	83959 83920 84115	1 1 2	83940
			Hose Steering Wheel	Refer to"Hydraulic Hoses" on page 442. Refer to wheel selection starting from page 417	Hose options Wheel options	1 1	Not Included

3/8"O.D. Hydraulic Nylon Tubing

Per Meter

Part No.	Description
84101	3/8"O.D. Semi Rigid Hydraulic Nylon Tubing

- 3/8"O.D. nylon tubing sold per meter for required length.
- Working pressure 625psi.
- Not recommended in application where total tubing run exceeds 30m (100ft).
- Each hose requires brass connectors - **84137** x 2 or nickel connectors **84138** x 2.

NOTE: Refer to "Ultraflex® Brass Hydraulic Fitting" on page 470

3/8"O.D. Hydraulic Nylon Tubing

Pre-Cut

Part No.	Description
84182	3/8"O.D. 12m Semi Rigid Hydraulic Nylon Tubing
84184	3/8"O.D. 15m Semi Rigid Hydraulic Nylon Tubing

- 3/8"O.D. nylon tubing sold 12m and 15m lengths.
- Working pressure 625psi.
- Each hose requires brass connectors - **84137** x 2 or nickel connectors **84138** x 2.

NOTE: Refer to "Ultraflex® Brass Hydraulic Fitting" on page 470.

Ultraflex® 5/16" I.D. Hydraulic High Flex Hose

Per Meter

Part No.	Description
84102A	Ultraflex® 5/16" I.D. High Flex Hose

- 5/16" I.D. hose sold per meter for required length.
- Recommended for use with all Ultraflex® standard helms with 1000 psi (70 Bar) relief valves.
- Highly flexible, high flow hose.
- Each hose requires brass connectors - **84103** x 2 and bend restrictors.

NOTE: Refer to "Ultraflex® Brass Hydraulic Fitting" on page 470.

Ultraflex® Additional Station Kit

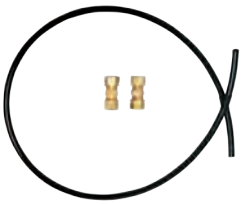
Part No.	Description
84120	Kit OB-2S - Additional Station Kit

- Fitting kit for a second steering station or an autopilot installation.
- It includes all necessary fittings and 8 m (26.3 ft) of 3/8" dia. nylon tube for the compensating line.

Ultraflex® Copper Tube Fitting Kit

Part No.	Description
84110	3/8" O.D. Copper Tube Fitting Kit
84111	10mm O.D. Copper Tube Fitting Kit

- Included two 0.5m (1.6ft) nylon tubes and all necessary fittings for a single station.



Ultraflex® OB/M Hose Kit for Single Station Installation

Part No.	Description
84186	KIT OB/M 6m (19.7ft) Hose Kit Pair
84187	KIT OB/M 9m (29.5ft) Hose Kit Pair

- Hose Kit consist of a pair of high pressure flexible hose with fittings featuring turning nuts pre assembled at one end only.
- It is supplied with 2 non assembled fittings and 2 reinforcing sleeves.
- Available on 6m (1.8ft) and 9m (2.7ft) standard lengths that can be cut to fit the desired application.

Ultraflex® Hoses Kits

Ultraflex® OB Hydraulic High Flex Hose Kits

Premium

Part No.	Description
84140	OB 4m (13.2ft) Hose Kit Pair
84145	OB 4.5m (14.8ft) Hose Kit Pair
84146	OB 5m (16.4ft) Hose Kit Pair
84147	OB 5.5m (18ft) Hose Kit Pair
84160	OB 6m (19.7ft) Hose Kit Pair
84165	OB 6.5m (21.3ft) Hose Kit Pair
84170	OB 7m (22.9ft) Hose Kit Pair
84175	OB 7.5m (24.6ft) Hose Kit Pair
84180	OB 8m (26.3ft) Hose Kit Pair

- Two 5/16" I.D. hose kits with pre-crimped brass fittings on both ends.
- Recommended for use with all Ultraflex® standard helms with 1000 psi (70 Bar) relief valves.
- Highly flexible, high flow hose.
- Available lengths from: 4m to 8m in 0.5m increments.

Ultraflex® OB/R5 Hose Kits for Single Station Installation

Premium

Part No.	Description
84240	OB/R5 3m (9.8ft) Hose Kit Pair
84242	OB/R5 4m (13.2ft) Hose Kit Pair
84244	OB/R5 5m (16.4ft) Hose Kit Pair
84245	OB/R5 5.5m (18ft) Hose Kit Pair
84246	OB/R5 6m (19.7ft) Hose Kit Pair
84247	OB/R5 6.5m (21.3ft) Hose Kit Pair
84248	OB/R5 7m (22.9ft) Hose Kit Pair

- Two 5/16" I.D. hose kits with pre-crimped brass fittings both ends with R5 bulkhead fittings at one end.
- Recommended for use with all Ultraflex® standard helms with 1000 psi (70 Bar) relief valves.
- Highly flexible, high flow hose.
- Available lengths from: 3m to 7m.

Ultraflex® Dual Engine / Dual Cylinder Connection Kits

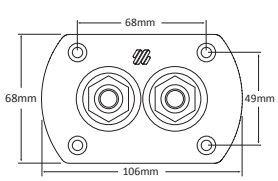
Premium

Part No.	Description
84259	OB-2C 0.7m (2.29ft) Hose Connection Kit Pair
84260	OB-2C 0.9m (2.95ft) Hose Connection Kit Pair
84261	OB-2C 1.2m (3.93ft) Hose Connection Kit Pair
84185	OB-2C 1.5m (4.9ft) Hose Connection Kit Pair

- Two high pressure flexible hoses with brass fittings on both ends.
- Recommended for use with the R9 - bulkhead kit for dual hose applications, available in black - **84278**, white - **84279** or chrome - **84280** finish refer to "Ultraflex® R9 - Outboard Well Bulkhead Hose Kits" on page 469.

NOTE: Not recommended for use with SilverSteer™ Series cylinders.

R9 - bulkhead kit for dual hose



Bulkhead dimensions

Ultraflex® OB-SVS Silver Steer™ Kevlar™ Hydraulic Hose Kit

Part No.	Description
84300	OB-SVS 5m (16.4ft) Hose Kit Pair
84302	OB-SVS 5.5m (18ft) Hose Kit Pair
84304	OB-SVS 6m (17.7ft) Hose Kit Pair
84306	OB-SVS 6.5m (21.3ft) Hose Kit Pair
84308	OB-SVS 7m (22.9ft) Hose Kit Pair
84310	OB-SVS 7.5m (24.6ft) Hose Kit Pair
84312	OB-SVS 8m (26.3ft) Hose Kit Pair
84314	OB-SVS 9m (29.5ft) Hose Kit Pair

- Two high pressure Kevlar™ stranded flexible hoses with pre-crimped fittings and bend restrictors on both ends.
- Recommended for use with all Ultraflex® SilverSteer™ helms with 1500psi relief valves.
- Lenghts available from 5m (16.4ft) to 9m (29.5ft) in 0.5m (1.6ft) increments.

Ultraflex® OB-SVS Silver Steer™ Kevlar™ Hydraulic Hose Kit

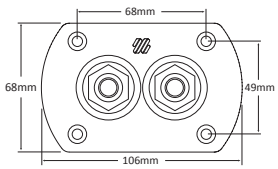
Part No.	Description
84320	OB/R5-SVS 5m (16.4ft) Hose Kit Pair
84322	OB/R5-SVS 5.5m (18ft) Hose Kit Pair
84324	OB/R5-SVS 6m (17.7ft) Hose Kit Pair
84326	OB/R5-SVS 6.5m (21.3ft) Hose Kit Pair
84328	OB/R5-SVS 7m (22.9ft) Hose Kit Pair
84330	OB/R5-SVS 7.5m (24.6ft) Hose Kit Pair
84332	OB/R5-SVS 8m (26.3ft) Hose Kit Pair
84334	OB/R5-SVS 9m (29.5ft) Hose Kit Pair

- Two high pressure Kevlar™ stranded flexible hoses with pre-crimped fittings, R5 bulkhead fittings and bend restrictors on both ends.
- Recommended for use with all Ultraflex® SilverSteer™ helms with 1500psi relief valves.
- Lenghts available from 5m (16.4ft) to 9m (29.5ft) in 0.5m (1.6ft) increments.

Ultraflex® Silver Steer™ Kevlar™ Dual Engine / Dual Cylinder Connection Kits

Part No.	Description
84340	OB-2C-SVS 0.7m (2.3ft) Hose Connection Kit Pair
84342	OB-2C-SVS 0.9m (2.95ft) Hose Connection Kit Pair
84344	OB-2C-SVS 1.2m (3.95ft) Hose Connection Kit Pair

- Two high pressure Kevlar™ stranded flexible hoses with pre-crimped fittings and bend restrictors on both ends.
- Recommended for use with all Ultraflex® SilverSteer™ helms with 1500psi relief valves.
- Available in 0.7m (2.3ft), 0.9m (2.95ft) and 1.2m (3.95ft).
- Recommended for use with the R9 - bulkhead kit for dual hose applications, available in black - **84278**, white - **84279** or chrome - **84280** finish refer to "Ultraflex® R9 - Outboard Well Bulkhead Hose Kits" on page 469.



Bulkhead dimensions

R9 - bulkhead kit for dual hose

Hydraulic Outboard Cylinders

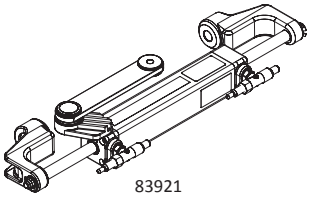
Front Mount Cylinders

Ultraflex® UC94-OBF Outboard Front Mount Hydraulic Cylinder - Only

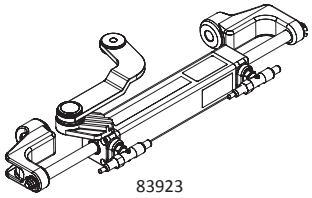
up to 150hp

Part No.	Description
83921	UC94-OBF/1 Cylinder only
83923	UC94-OBF/3 Cylinder only

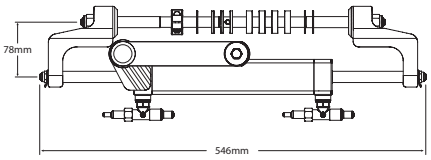
- For outboard engines up to 150 hp.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Adjustable boss style fittings for easy installation.
- High resistance stainless steel connection bolt (Ultrabolt).
- Patented innovative design: split and pinned cylinder mounting rod for easy installation and bushings to prevent friction with engine tilt tube.
- Available in two versions:
  - **83921** - UC94-OBF/1: Evinrude®, Honda®, Johnson®, Mercury®Mariner®, Suzuki®, Selva® Tohatsu®Nissan®and Yamaha®
  - **83923** - UC94-OBF/3: Honda® and Mercury® Mariner®



83921

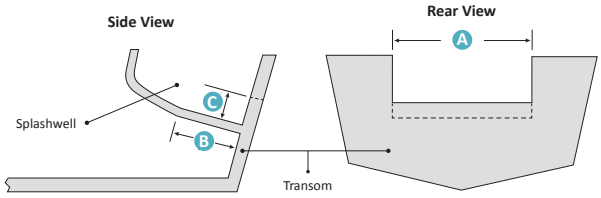


83923



Specifications	UC94-OBF
Volume	94 cc - 5.7 cu. in
Output force	278 kg - 613 lbs
Inside diameter	30 mm - 1.18”
Stroke	186 mm - 7.3”
3/8” (9.5mm) Fittings	For high pressure flex hose
Bleed fittings	DN5 Quick connect

Engine splashwell dimensions



Splashwell Dimension Requirements			
No. of Engines	A	B	C
1	540 mm - 21.25”	152 mm - 5.98”	152 mm - 5.98”
2*	1110 mm - 43.70”	152 mm - 5.98”	152 mm - 5.98”

**NOTE: For twin engine applications, the minimum distance between the two engine centres is 550 mm (21.6”)*

Engine Application Guide for UC94-OBF Hydraulic Cylinder - Only

Engine	Power	Year	Cylinder	P/N
Evinrude®	E40-E50-E55-E60 2 Stroke	2004-to date	UC94-OBF/1	**83921**
	E75-E90 2 Stroke	1995-to date	UC94-OBF/1	**83921**
	E115-E130-E135 2 Stroke V4	1995-to date	UC94-OBF/1	**83921**
	E150 2 Stroke V6	1995-to date	UC94-OBF/1	**83921**
Honda®	BF75-BF90 4 Stroke	1995-to date	UC94-OBF/1	**83921**
	BF115D	1998-2009	UC94-OBF/3	**83923**
	BF115A	2009-to date	UC94-OBF/1	**83921**
	BF130A	1998-2005	UC94-OBF/3	**83923**
	BF135-BF150 4 Stroke	2005-to date	UC94-OBF/1	**83921**
	BF90-BF150 V-TEC 4 Stroke	2008-to date	UC94-OBF/1	**83921**
Johnson®	BJ60-70 4 Stroke	2001-2007	UC94-OBF/1	**83921**
	BJ90-115-140 4 Stroke	2001-2007	UC94-OBF/1	**83921**
	J90-115 V4 2 Stroke	1995-2007	UC94-OBF/1	**83921**
Mercury® Mariner®	50 – 75 – 90 2 Stroke	1990-2008	UC94-OBF/1	**83921**
	115 – 125 – 150 EFI 2 Stroke	1990-2007	UC94-OBF/1	**83921**
	75 – 90 – 115 - 125 Optimax 2 Stroke	2004-to date	UC94-OBF/3	**83923**
	135 – 150 Optimax 2 Stroke	1999-to date	UC94-OBF/1	**83921**
	40 – 50 – 60 EFI 4 Stroke	2004-to date	UC94-OBF/1	**83921**
	75 – 80 – 90 EFI 4 Stroke	2000-to date	UC94-OBF/1	**83921**
	100 – 115 EFI 4 Stroke	2007-to date	UC94-OBF/1	**83921**
Suzuki®	DF70-80-90 4 Stroke	1998-to date	UC94-OBF/1	**83921**
	DF100-115-140 4 Stroke*	1998-2008	UC94-OBF/1*	**83921***
	DF100-115-140 4 Stroke new model	2008-to date	UC94-OBF/1	**83921**
	DF150 4 Stroke	2006-to date	UC94-OBF/1	**83921**

Engine	Power	Year	Cylinder	P/N
Selva®	50 Madeira/ Bull shark-60 Grey	–	–	–
	Shark/St.tropez- 70 Mako Shark 2 Stroke	–	UC94-OBF/1	**83921**
	80 Portofino/Tigershark 2 Stroke	1995-2008	UC94-OBF/1	**83921**
	150 White Shark 2 Stroke	2001-2007	UC94-OBF/1	**83921**
	50-60 Dorado EFI 4 Stroke	–	UC94-OBF/1	**83921**
	100 EFI Marlin -115 EFI Narwhal-150EFI	2000-to date	UC94-OBF/1	**83921**
	Killer Whale 4 Stroke	–	–	–
Tohatsu® Nissan®	50-60-70-90 2 Stroke	2004-to date	UC94-OBF/1	**83921**
	115-120-140 2 Stroke	2004-to date	UC94-OBF/1	**83921**
	40-50TLDI 4 Stroke	2004-to date	UC94-OBF/1	**83921**
	70-90-115 TLDI 4 Stroke	2004-to date	UC94-OBF/1	**83921**
Yamaha®	60-70 2 Stroke	1984-2008	UC94-OBF/1	**83921**
	75C-90 2 Stroke	1998-2008	UC94-OBF/1	**83921**
	115C-130B 2 Stroke	1990-2008	UC94-OBF/1	**83921**
	150F	1996-2007	UC94-OBF/1	**83921**
	150 HPDI VMAX 2 Stroke	2000-2008	UC94-OBF/1	**83921**
	F60-F75-F80 EFI 4 Stroke	1999-2007	UC94-OBF/1	**83921**
	F90-F100-F115-F150 EFI 4 Stroke	1999-2007	UC94-OBF/1	**83921**
	F80-F100 4 Stroke	2000-to date	UC94-OBF/1	**83921**
	F115-F150	2004-to date	UC94-OBF/1	**83921**

NOTE: Suzuki® engines built from 1998 to 2008 installing UC94-OBF/1 cylinder require optional KIT SU* - **83919

Ultraflex® UC128-OBF Outboard Front Mount Hydraulic Cylinder - Only

Part No.	Description
83913/1	UC128-OBF/1 Starboard Side Cylinder
83913/1P	UC128P-OBF/1 Port Side Cylinder
83913/2	UC128-OBF/2 Starboard Side Cylinder
83913/2P	UC128P-OBF/2 Port Side Cylinder
83913/3	UC128-OBF/3 Starboard Side Cylinder

up to 300hp

- For outboard engines up to 300 hp.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Adjustable boss style fittings for easy installation.
- High resistance stainless steel connection bolt (Ultrabolt).
- The UC128 cylinder is built to last with heavy duty stainless steel cylinder rod, seals and link assemblies.
- Constructed of top grade materials, this cylinder is simple to install and fits almost every 2 and 4 stroke outboard engine in the market.
- The UC128 cylinders are recommended for use with UP25, UP28, UP33 and UP39 series helms and pre-assembled hoses (Kit OB and Kit OB/R5).

Single Cylinder Applications:

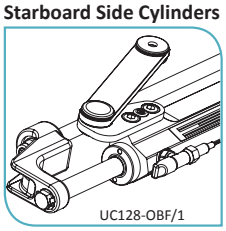
- The UC128-OBF Starboard cylinder is available in three versions:
  - **83913/1** - UC128-OBF/1: Honda®, Johnson®, Mercury®Mariner®, Suzuki®, Selva® Tohatsu®Nissan®and Yamaha®.
  - **83913/2** - UC128-OBF/2: Evinrude®, Johnson®, Suzuki®, Selva® Tohatsu®Nissan®and Yamaha®.
  - **83913/3** - UC128-OBF/3: Honda® and Mercury®Mariner®.

Dual Cylinder Applications:

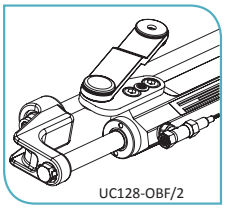
- In dual cylinder applications it is necessary to order both Starboard and Port Side Cylinders:
  - **83913/1** Starboard Cylinder with **83913/1P** Port Cylinder
  - **83913/2** Starboard Cylinder with **83913/2P** Port Cylinder
- See appropriate section for A90 tie bar, required for dual engine/dual cylinder applications.
- The UC128P-OBF port cylinder is available in two versions:
  - **83913/1P** - UC128P-OBF/1: Honda®, Johnson®, Mercury®Mariner®, Suzuki®, Selva® Tohatsu®Nissan®and Yamaha®
  - **83913/2P** - UC128P-OBF/2: Evinrude®, Johnson®, Suzuki®, Selva® Tohatsu®Nissan®and Yamaha®.

NOTE: Refer to"Engine Application Guide for UC128-OBF Hydraulic Cylinder - Only" on page 447 to choose the appropriate cylinder for your engine type.

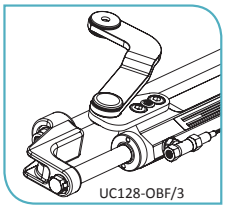
Starboard Side Cylinders



83913/1

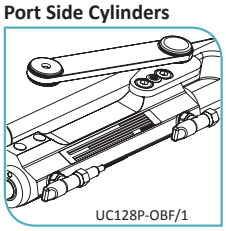


83913/2

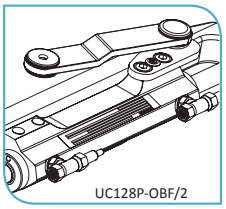


83913/3

Port Side Cylinders



83913/1P



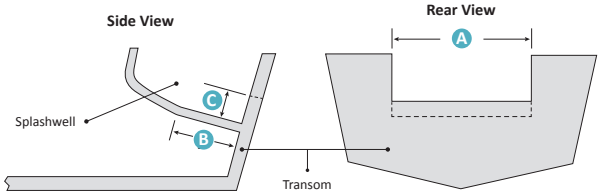
83913/2P

Specifications	UC128-OBF
Volume	120 cc - 7.3 cu. in
Output force	450 kg - 992 lbs
Inside diameter	35 mm - 1.37”
Stroke	185 mm - 7.28”
3/8” (9.5mm) Fittings	For high pressure flex hose
Bleed fittings	DN5 Quick connect

Splashwell Dimension Requirements			
No. of Engines	**A**	**B**	**C**
1	560 mm - 22.05”	152 mm - 5.98”	152 mm - 5.98”
2*	1110 mm - 43.70”	152 mm - 5.98”	152 mm - 5.98”

**NOTE: For twin engine applications, the minimum distance between the two engine centres is 550 mm (21.6”)*

Engine splashwell dimensions



Front Mount Cylinders

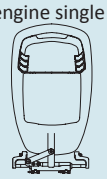
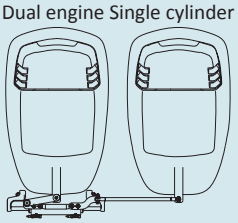
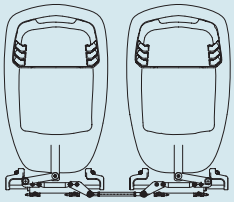
Engine Application Guide for UC128-OBF Hydraulic Cylinder - Only

Engine	Power	Year	Cylinder	P/N
Evinrude®	E75-E90 2 Stroke	2004-to date	UC128-OBF/2	83913/2
	E115-E130-E135 2Stroke V4	1995-to date	UC128-OBF/2	83913/2
	E150-E175-E200 2Stroke V6	1995-to date	UC128-OBF/2	83913/2
	E200 HO- E225-E250 2 Stroke V6	1995-to date	UC128-OBF/2	83913/2
	E250 HO- E300 2 Stroke V6		UC128-OBF/2	83913/2
Honda®	BF75-90 4 Stroke	1995-to date	UC128-OBF/1	83913/1
	BF115D	1998-2009	UC128-OBF/3	83913/3
	BF115A	2009-to date	UC128-OBF/1	83913/1
	BF130A	1998-2005	UC128-OBF/3	83913/3
	BF135-150 4 Stroke	2005-to date	UC128-OBF/1	83913/1
	BF90-BF150 V-TEC 4 Stroke	2008-to date	UC128-OBF/1	83913/1
	BF175-200-225 4 Stroke	2001-to date	UC128-OBF/1	83913/1
Johnson®	BJ90-115-140 4 Stroke	2001-2007	UC128-OBF/1	83913/1
	J90-115 V4 2 Stroke	1995-2007	UC128-OBF/2	83913/2
	J150-175 V6 2 Stroke	1995-2007	UC128-OBF/2	83913/2
	J200-225 V6 4 Stroke	2004-2007	UC128-OBF/2	83913/2
Mercury® Mariner®	75-90-115-125 Optimax 2 Stroke	2004 to date	UC128-OBF/3	83913/3
	135-150-175 Optimax 2 Stroke	1999 to date	UC128-OBF/1	83913/1
	200-225-250 Optimax 2 Stroke	1999 to date	UC128-OBF/1	83913/1
	RACING 300 Optimax 2 Stroke	–	UC128-OBF/1	83913/1
	100-115 EFI 4 Stroke	2007 to date	UC128-OBF/1	83913/1
	115-125-150 EFI 2 Stroke	1990 - 2007	UC128-OBF/1	83913/1
	225-250 EFI 2 Stroke	2000 - 2007	UC128-OBF/1	83913/1
	250 Saltwater EFI 4 Stroke	2007 to date	UC128-OBF/1	83913/1
	135-150-175-200 Verado L4 4 Stroke	2004 - 2006	UC128-OBF/1	83913/1

Engine	Power	Year	Cylinder	P/N
Suzuki®	DF70-80-90 4 Stroke	1998-to date	UC128-OBF/2	83913/2
	DF100-115-140 4 Stroke*	1998-2008	UC128-OBF/1*	83913/1*
	DF100-115-140 4 Stroke (new model)	2008-to date	UC128-OBF/1	83913/1
	DF150-175 4 Stroke	2006-to date	UC128-OBF/1	83913/1
	DF200-DF225-DF250-DF300		UC128-OBF/2	83913/2
Selva®	80 Portofino/Tigershark 2 Stroke	1995-to date	UC128-OBF/1	83913/1
	150 White Shark 2 Stroke			
	100EFI Marlin -115 EFI Narwhal-	2001-2007	UC128-OBF/2	83913/2
	150EFI Killer Whale 4 Stroke	2000-to date	UC128-OBF/1	83913/1
Tohatsu® Nissan®	115-120-140 2 Stroke	2004-to date	UC128-OBF/2	83913/2
	70-90-115 TLDI 4 Stroke	2004-to date	UC128-OBF/1	83913/1
Yamaha®	75C-90 2 Stroke	1998-2008	UC128-OBF/2	83913/2
	115C-130B 2 Stroke	1990-2008	UC128-OBF/2	83913/2
	150F-200F-250G 2 Stroke	1996-2007	UC128-OBF/2	83913/2
	150 HPDI VMAX 2 Stroke	2000-2008	UC128-OBF/2	83913/2
	175-200-225-250-300 HPDI VMAX 2 Stroke	2000-2008	UC128-OBF/2	83913/2
	F70 4 Stroke	2010-to date	UC128P-OBF/1	–
	F90-F100-F115-F150 EFI 4 Stroke	1999-2007	UC128-OBF/1	83913/1
	F200-F225-F250 4 Stroke	2002-2007	UC128-OBF/2	83913/2
	F115-F150	2004-to date	UC128-OBF/1	83913/1
	F200-F225-F250-F300 4 Stroke	2006-to date	UC128-OBF/2	83913/2
	F350 4 Stroke	2008-to date	see UC128-SVS	–

NOTE: Suzuki® engines built from 1998 to 2008 installing UC128-OBF/1 cylinder require optional KIT SU -* **83919

Ultraflex® UC128-OBF Hydraulic Cylinder Ordering Guide

System	Application	Wheel Turns	Components	Model	Part No.	Qty
Single engine single cylinder 	up to 300hp Maximum	4.8 (UP25) 4.3 (UP28)	Cylinder	UC128-OBF	83913/1	1
			Helm pump*	UP25* or UP28*	83925* or 83928*	1
			Hose	See hose options	See hose options	1
			Oil	OIL 15	84115	2
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP25 or UP28, 1 x KIT OB-2S fitting kit, 1 x Hose, 1 x OIL 15, 1 x steering wheel						
Dual engine Single cylinder 	up to 300hp Maximum Non-counter rotating engine; up to 500hp Maximum Counter rotating engine	4.8 (UP25) 4.3 (UP28) 3.6 (UP33)	Cylinder	UC128-OBF	83913/1	1
			Helm pump*	UP25* / UP28* / UP33*	83925* / 83928* / 83933*	1
			Hose	See hose options	See hose options	1
			Oil	OIL 15	84115	2
			Tie bar	A94 or A88	84194 or 84188	1
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP25, UP28 or UP33, 1 x Hose, 1 x OIL 15, 1 x steering wheel and 1 x 84120 - KIT OB-2S fitting kit.						
Dual engine Dual cylinder 	up to 500hp Maximum Non-counter rotating engines); up to 600hp Maximum Counter rotating engines	6.1 (UP39)	Cylinder Cylinder port	UC128-OBF UC128P-OBF	83913/1 83913/1P	1 1
			Helm pump*	UP39*	83939*	1
			Tie bar	A90	84190	1
			Oil	OIL 15	84115	3
			Hose	See hose options	See hose options	1
			Connection kit	KIT OB-2C	See hose options	1
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP39, 1 x hose, 1 x OIL 15, 1 x steering wheel, 1 x 84120 - KIT OB-2S fitting kit and 2 x 84118 - TF38 fittings.						
*NOTE: Helm pumps are available in tilt, front and rear mount options, Refer to "Hydraulic Helm Pumps" on page 459						

NOTE: For high performance applications SilverSteer™ systems are recommended.

WARNING: The UC128-OBF front mount cylinder is not recommended for use in installations where the boat speed exceeds 50 mph (50 knots) (60 mph (60 knots) in dual engine, dual cylinder and counter rotating engines application). Not intended for use in racing application.

Ultraflex® UC128 SilverSteer™ Outboard Front Mount Hydraulic Cylinder - Only

Part No.	Description
83916/1	UC128-SVS/1 Starboard Side Cylinder
83916/1P	UC128P-SVS/1 Port Side Cylinder
83916/2	UC128-SVS/2 Starboard Side Cylinder
83916/2P	UC128P-SVS/2 Port Side Cylinder
83916/3	UC128-SVS/3 Starboard Side Cylinder

up to 350hp

High Performance

83916/1

83916/1P

- For outboard engines up to 350 hp.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Adjustable boss style fittings for easy installation.
- High resistance stainless steel connection bolt (Ultrabolt).
- The UC128 cylinder is built to last with heavy duty stainless steel cylinder rod, seals and link assemblies.
- Constructed of top grade materials, this cylinder is simple to install and fits almost every 2 and 4 stroke outboard engine in the market.
- The UC128 cylinders are recommended for use with UP25-SVS, UP28-SVS, UP33-SVS and UP39-SVS series helms and pre-assembled hoses (Kit OB and Kit OB/R5).

Single Cylinder Applications:

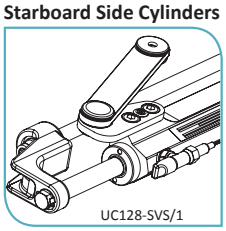
- The UC128-OBF Starboard cylinder is available in three versions:
  - **83916/1** - UC128-SVS/1: Honda®, Johnson®, Mercury®Mariner®, Suzuki®, Selva® Tohatsu®Nissan®and Yamaha®.
  - **83916/2** - UC128-SVS/2: Evinrude®, Johnson®, Suzuki®, Selva® Tohatsu®Nissan®and Yamaha®.
  - **83916/3** - UC128-SVS/3: Honda® and Mercury®Mariner®.

Dual Cylinder Applications:

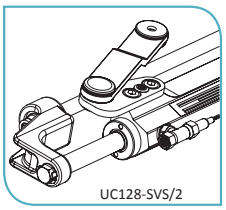
- In dual cylinder applications it is necessary to order both Starboard and Port Side Cylinders:
  - **83916/1** Starboard Cylinder with **83916/1P** Port Cylinder
  - **83916/2** Starboard Cylinder with **83916/2P** Port Cylinder
- See appropriate section for A90 tie bar, required for dual engine/dual cylinder applications.
- The UC128P-SVS port cylinder is available in two versions:
  - **83916/1P** - UC128P-SVS/1: Honda®, Johnson®, Mercury®Mariner®, Suzuki®, Selva® Tohatsu®Nissan®and Yamaha®
  - **83916/2P** - UC128P-SVS/2: Evinrude®, Johnson®, Suzuki®, Selva® Tohatsu®Nissan®and Yamaha®.

NOTE: Refer to"Engine Application Guide for UC128-OBF Hydraulic Cylinder - Only" on page 447 to choose the appropriate cylinder for your engine type.

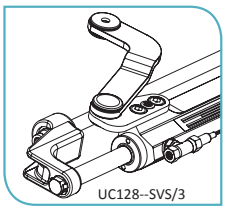
Starboard Side Cylinders



83916/1

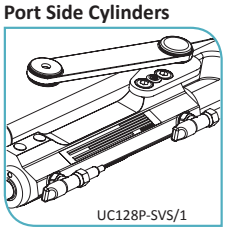


83916/2

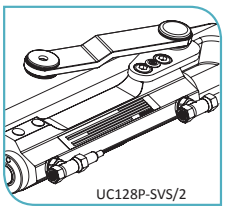


83916/3

Port Side Cylinders



83916/1P



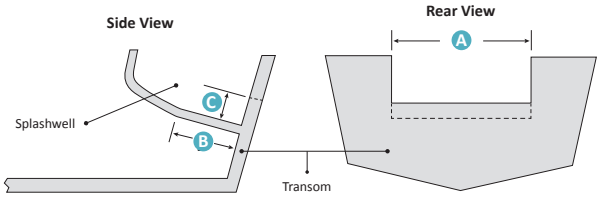
83916/2P

Specifications	UC128-SVS
Volume	120 cc - 7.3 cu. in
Output force	450 kg - 992 lbs
Inside diameter	35 mm - 1.37”
Stroke	185 mm - 7.28”
3/8” (9.5mm) Fittings	For high pressure flex hose
Bleed fittings	DN5 Quick connect

Splashwell Dimension Requirements			
No. of Engines	**A**	**B**	**C**
1	560 mm - 22.05”	152 mm - 5.98”	152 mm - 5.98”
2*	1110 mm - 43.70”	152 mm - 5.98”	152 mm - 5.98”

**NOTE: For twin engine applications, the minimum distance between the two engine centres is 550 mm (21.6”)*

Engine splashwell dimensions



SilverSteer™ Front Mount Cylinders

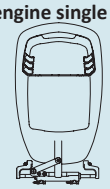
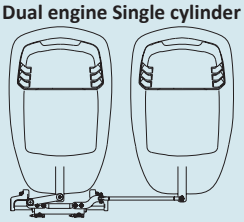
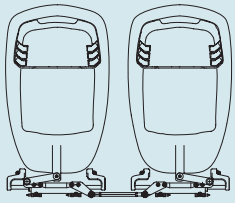
Engine Application Guide for UC128 SilverSteer™ Hydraulic Cylinder

Engine	Power	Year	Cylinder	P/N
Evinrude®	E75-E90 2 Stroke	2004-to date	UC128-SVS/2	**83916/2**
	E115-E130-E135 2Stroke V4	1995-to date	UC128-SVS/2	**83916/2**
	E150-E175-E200 2Stroke V6	1995-to date	UC128-SVS/2	**83916/2**
	E200 HO- E225-E250 2 Stroke V6	1995-to date	UC128-SVS/2	**83916/2**
	E250 HO- E300 2 Stroke V6	1995-to date	UC128-SVS/2	**83916/2**
Honda®	BF75-90 4 Stroke	1995-to date	UC128-SVS/1	**83916/1**
	BF115D	1998-2009	UC128-SVS/3	**83916/3**
	BF115A	2009-to date	UC128-SVS/1	**83916/1**
	BF130A	1998-2005	UC128-SVS/3	**83916/3**
	BF135-150 4 Stroke	2005-to date	UC128-SVS/1	**83916/1**
	BF90-BF150 V-TEC 4 Stroke	2008-to date	UC128-SVS/1	**83916/1**
	BF175-200-225 4 Stroke	2001-to date	UC128-SVS/1	**83916/1**
Johnson®	BJ90-115-140 4 Stroke	2001-2007	UC128-SVS/1	**83916/1**
	J90-115 V4 2 Stroke	1995-2007	UC128-SVS/2	**83916/2**
	J150-175 V6 2 Stroke	1995-2007	UC128-SVS/2	**83916/2**
	J200-225 V6 4 Stroke	2004-2007	UC128-SVS/2	**83916/2**
Mercury® Mariner®	75-90-115-125 Optimax 2 Stroke	2004 to date	UC128-SVS/3	**83916/3**
	135-150-175 Optimax 2 Stroke	1999 to date	UC128-SVS/1	**83916/1**
	200-225-250 Optimax 2 Stroke	1999 to date	UC128-SVS/1	**83916/1**
	RACING 300 Optimax 2 Stroke	–	UC128-SVS/1	**83916/1**
	100-115 EFI 4 Stroke	2007 to date	UC128-SVS/1	**83916/1**
	115-125-150 EFI 2 Stroke	1990 - 2007	UC128-SVS/1	**83916/1**
	225-250 EFI 2 Stroke	2000 - 2007	UC128-SVS/1	**83916/1**
	250 Saltwater EFI 4 Stroke	2007 to date	UC128-SVS/1	**83916/1**
	135-150-175-200 Verado L4 4 Stroke	2004 - 2006	UC128-SVS/1	**83916/1**

Engine	Power	Year	Cylinder	P/N
Suzuki®	DF70-80-90 4 Stroke	1998-to date	UC128-SVS/2	**83916/2**
	DF100-115-140 4 Stroke*	1998-2008	UC128-SVS/1*	**83916/1***
	DF100-115-140 4 Stroke (new model)	2008-to date	UC128-SVS/1	**83916/1**
	DF150-175 4 Stroke	2006-to date	UC128-SVS/1	**83916/1**
	DF200-DF225-DF250-DF300		UC128-SVS/2	**83916/2**
Selva®	80 Portofino/Tigershark 2 Stroke	1995-to date	UC128-SVS/1	**83916/1**
	150 White Shark 2 Stroke			
	100EFI Marlin -115 EFI Narwhal-	2001-2007	UC128-SVS/2	**83916/2**
	150EFI Killer Whale 4 Stroke	2000-to date	UC128-SVS/1	**83916/1**
Tohatsu® Nissan®	115-120-140 2 Stroke	2004-to date	UC128-SVS/2	**83916/2**
	70-90-115 TLDI 4 Stroke	2004-to date	UC128-SVS/1	**83916/1**
Yamaha®	75C-90 2 Stroke	1998-2008	UC128-SVS/2	**83916/2**
	115C-130B 2 Stroke	1990-2008	UC128-SVS/2	**83916/2**
	150F-200F-250G 2 Stroke	1996-2007	UC128-SVS/2	**83916/2**
	150 HPDI VMAX 2 Stroke	2000-2008	UC128-SVS/2	**83916/2**
	175-200-225-250-300 HPDI VMAX 2 Stroke	2000-2008	UC128-SVS/2	**83916/2**
	F70 4 Stroke	2010-to date	UC128P-OBF/1	–
	F90-F100-F115-F150 EFI 4 Stroke	1999-2007	UC128-SVS/1	**83916/1**
	F200-F225-F250 4 Stroke	2002-2007	UC128-SVS/2	**83916/2**
	F115-F150	2004-to date	UC128-SVS/1	**83916/1**
	F200-F225-F250-F300 4 Stroke	2006-to date	UC128-SVS/2	**83916/2**
	F350 4 Stroke	2008-to date	see UC128-SVS	–

NOTE: Suzuki® engines built from 1998 to 2008 installing UC128-SVS/1 cylinder require optional KIT SU - **83919*

Ultraflex® UC128 SilverSteer™ Hydraulic Cylinder Ordering Guide

System	Application	Wheel Turns	Components	Model	Part No.	Qty
Single engine single cylinder 	*up to 350hp Maximum*	4.3 (UP28-SVS) 3.6 (UP33-SVS)	Cylinder	UC128-SVS	83916/1/2/3	1
			Helm pump*	UP28-SVS* / UP33-SVS*	84028* / 84033*	1
			Hose	See hose options	See hose options	1
			Oil	OIL 15	84115	2
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP28-SVS or UP33-SVS 1 x KIT OB-2S fitting kit, 1 x Hose, 1 x OIL 15, 1 x steering wheel						
Dual engine Single cylinder 	*up to 350hp Maximum* Non-counter rotating engine; *up to 600hp Maximum* Counter rotating engine	4.3 (UP28-SVS) 3.6 (UP33-SVS)	Cylinder	UC128-SVS	83916/1/2/3	1
			Helm pump*	UP28-SVS* / UP33-SVS*	84028* / 84033*	1
			Hose	See hose options	See hose options	1
			Oil	OIL 15	84115	2
			Tie bar	A94 or A88	84194 or 84188	1
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP28-SVS or UP33-SVS 1 x Hose, 1 x OIL 15, 1 x steering wheel and 1 x **84120** - KIT OB-2S fitting kit.						
Dual engine Dual cylinder 	*up to 600hp Maximum* Non-counter rotating engines); *up to 700hp Maximum* Counter rotating engines	6.1 (UP39-SVS)	Cylinder Cylinder port	UC128-SVS UC128P-SVS	83916/1/2 83916/1P/2P	1 1
			Helm pump*	UP39-SVS*	84039*	1
			Tie bar	A90	84190	1
			Oil	OIL 15	84115	3
			Hose	See hose options	See hose options	1
			Connection kit	KIT OB-2C	See hose options	1
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP39-SVS, 1 x hose, 1 x OIL 15, 1 x steering wheel, 1 x **84120** - KIT OB-2S fitting kit and 2 x **84118** - TF38 fittings.						

**NOTE Helm pumps are available in tilt, front and rear mount options, Refer to "Hydraulic Helm Pumps" on page 459*

NOTE: The SilverSteer™ helm pumps should always be installed in conjunction with the UC128-SVS cylinder and the Kevlar reinforced hose kit KIT OB-SVS.

Balanced versus Unbalanced Side Mount Outboard Cylinders

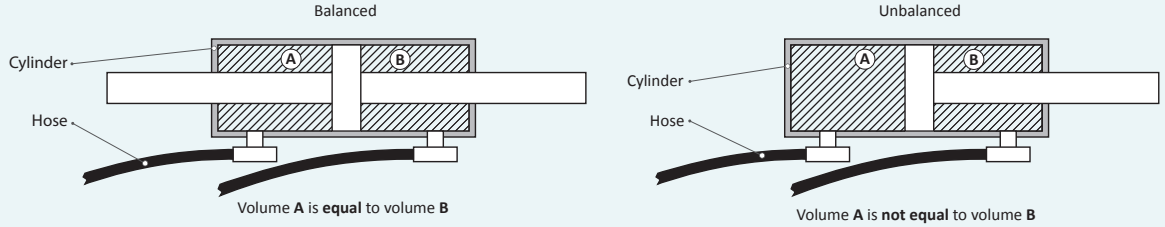
Balanced vs Unbalanced

The advantage of having a balanced cylinder is the number of turns at the helm pump required to fill each chamber is even port to starboard or vice-versa. However they require a larger area to install. Unbalanced cylinders have uneven size chambers so the number of turns at the helm pump required to fill each chamber is uneven port to starboard or vice-versa. They are more compact and requires a smaller area to install.

How To Measure Steering Wheel Turns when Selecting a helm pump for a cylinder*

The volume of the cylinder in cubic centimetres (cc) divided by the volume of the helm pump in cubic centimetres (cc).

Example: Cylinder volume = 132cc
Helm pump volume = 25cc — 132 ÷ 25 = 5.28 turn
Round off to 5.3 turns



NOTE: When selecting the right cylinder for your application please consult our technical service department

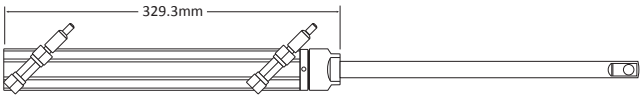
Ultraflex® UC68-OBS Outboard Side Mount Cylinder Steering Kit

up to 150hp

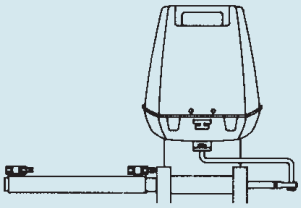
Part No.	Description
83908C	UC68-OBS Outboard Side Mount Cylinder

- For outboard engines up to 150hp.
- Unbalanced: the number of turns lock-to-lock is not equal port to starboard and vice-versa.
- UC68-OBS side mount cylinder features a patented turning nut for a fast and easy installation to the engine tube.
- Clearance required at the engine tube side is 340mm (13.3”).
- Recommended for use where maximum boat speed do not exceed 40mph (40knots).

Specifications	83908C - UC68-OBS
Volume	68/100 cc - 4.1/6.1 cu. in
Output force	185/270 kg - 408/595 lbs
Inside diameter	25 mm - 0.98”
Stroke	203 mm - 8”
3/8” (9.5mm) Fittings	For high pressure flex hose



Hydraulic Steering System Ordering Guide

System	Application	Wheel Turns	Components	Model	Part No.	Qty	Kit No.
Single engine single cylinder 	*up to 150hp Maximum*	3.4 or 5	Cylinder Helm pump Hydraulic Oil	UC68-OBS UP20 OIL 15	**83908C** **83920** **84115**	1 1 2	83908
			Hose Steering wheel	Hose options Wheel options	Hose options Wheel options	1 1	Not included

Side Mount Cylinders

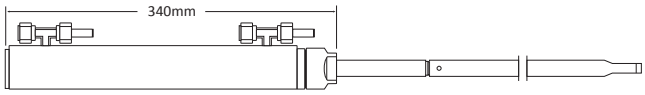
Ultraflex® UC132-OBS Outboard Side Mount Cylinder

up to 300hp

Part No.	Description
83914	UC132-OBS Outboard Side Mount Cylinder

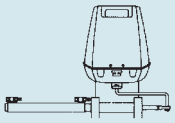
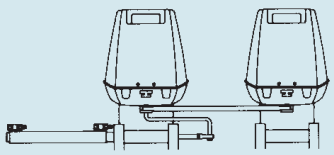
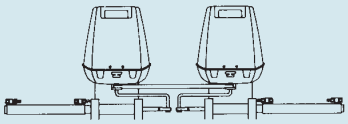
- For outboard engines up to 300 hp.
- Unbalanced: the number of turns lock-to-lock is not equal port to starboard and vice-versa.
- UC132-OBS side mount cylinder features a patented turning nut for a fast and easy installation to the engine tube.
- Clearance required at the engine tube side is 375 mm (14.76”).
- Recommended for use where maximum boat speed do not exceed 40mph (40knots).
- The UC132 cylinders are recommended for use with UP25, UP28, UP33 and UP39 series helms and pre-assembled hoses (Kit OB and Kit OB/R5).

NOTE: UC132-OBS cylinder is not intended for use with 105 Bar (1500psi) SilverSteer Series Helms.



Specifications	83914 - UC132-OBS
Volume	132 / 163 cc - 8 / 9.95 cu. in
Output force	464 / 574 kg - 1023 / 1265 lbs
Inside diameter	32 mm - 1.25”
Stroke	203 mm - 8”
3/8” (9.5mm) Fittings	For high pressure flex hose

Ultraflex® UC132-OBS Outboard Side Mount Cylinder Ordering Guide

System	Application	Wheel Turns	Components	Model	Part No.	Qty
Single engine single cylinder 	*up to 300hp Maximum*	5.3/6.5 (UP25) 4.7/5.8 (UP28)	Cylinder	UC132-OBS	83914	1
			Helm pump*	UP25* or UP28*	83925* or 83928*	1
			Hose	Hose options	Hose options	1
			Oil	OIL 15	84115	2
			Steering wheel	Wheel options	Wheel options	1
For a second station add: 1 x UP25 or UP28, 1 x KIT OB-2S fitting kit, 1 x Hose, 1 x OIL 15, 1 x steering wheel						
Dual engine Single cylinder 	*up to 300hp Maximum* Non-counter rotating engines *up to 450hp Maximum* Counter rotating engines	5.3/6.5 (UP25) 4.7/5.8 (UP28) 4 or 4.9 (UP33)	Cylinder	UC132-OBS	83914	1
			Helm pump*	UP25* / UP28* / UP33*	83925* / 83928* / 83933*	1
			Hose	See hose options	See hose options	1
			Oil	OIL 15	84115	2
			Tie bar	A94 or A88	84194 or 84188	1
			Steering wheel	See wheel options	See wheel options	1
For a second station add: 1 x UP25, UP28 or UP33, 1 x Hose, 1 x OIL 15, 1 x steering wheel and 1 x 84120 - KIT OB-2S fitting kit.						
Dual engine Dual cylinder 	*up to 500hp Maximum* Non-counter rotating engines *up to 600hp Maximum* Counter rotating engines	6.1 (UP39)	Cylinder	UC132-OBS	83914	2
			Helm pump*	UP39*	83939*	1
			Tie bar	A94 or A88	84194 or 84188	1
			Oil	OIL 15	84115	3
			Hose	Hose options	Hose options	1
			Connection kit	KIT OB-2C	Hose options	1
			Steering wheel	Wheel options	Wheel options	1
For a second station add: 1 x UP39, 1 x hose, 1 x OIL 15, 1 x steering wheel, 1 x 84120 - KIT OB-2S fitting kit and 2 x 84118 - TF38 fittings.						

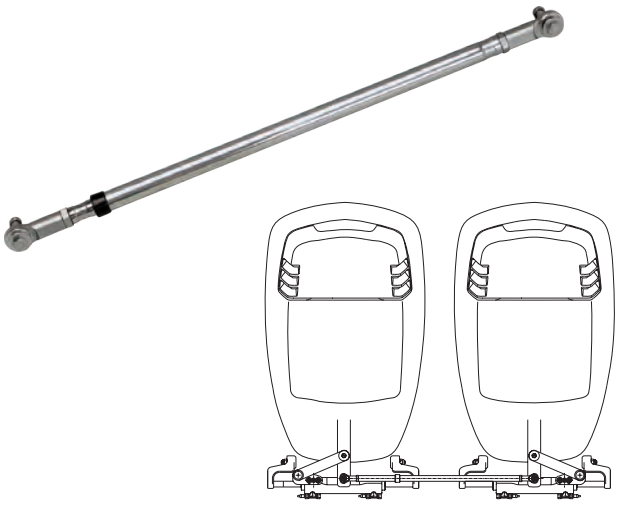
*NOTE: Helm pumps are available in tilt, front and rear mount options, Refer to “Hydraulic Helm Pumps” on page 459
WARNING: This application requires that the threads on the tilt tube extend at least 15mm (0.6”) from both sides.

Ultraflex® A88 Tie Bar

Part No.	Description
84188	A88 Adjustable Tie Bar Twin Engine

- Universal tie bars suitable for all outboard applications (racing application excepted) with single or dual cylinder.
- Electropolished stainless steel ball joint.
- All stainless steel components.
- Applicable to twin outboard engines using mechanical steering.
- Adjustable from 650mm (25.6”) to 950mm (37.4”) engine centres.

NOTE: On those applications where the clearance between engine tiller arms and cowling is not sufficient for the use of the A88, the A92 tie bar is recommended.



Ultraflex® A92 Tie Bar

Part No.	Description
84192	A92 Stainless Steel Tie Bar for Twin engines

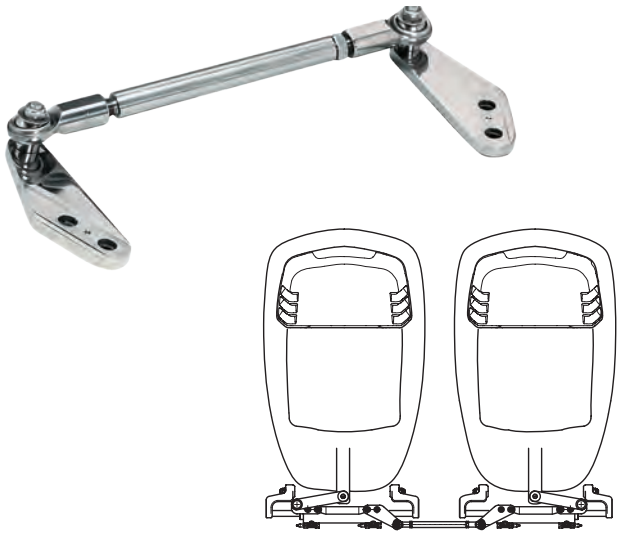
- Easily adjustable before or after installation.
- All stainless steel components.
- Adjustable from 550 mm (21.6”) to 700 mm (27.5”) engine centres.

Ultraflex® A90 Tie Bar

Part No.	Description
84190	A90 Tie Bar Dual UC128 Cylinder

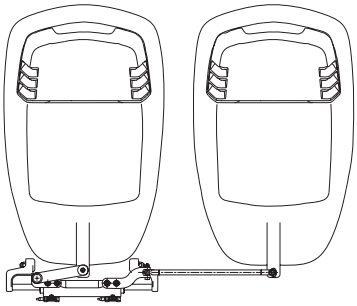
- Suitable for applications with dual UC128-OBF (or UC128-SVS) front mount cylinder. In applications with single cylinder use A94 tie bar.
- All stainless steel
- Electropolished stainless steel ball joints.
- Allows to tilt the engines independently.
- Applicable to engine centres variable from 660mm (26”) to 950mm (37.4”).

NOTE: In the applications with dual UC128-OBF (or UC128-SVS) cylinder it is necessary to order a standard UC128-OBF (or UC128-SVS) cylinder (link arm attached to the starboard side of the cylinder) and a UC128P-OBF (or UC128P-SVS) port cylinder (link arm attached to the port side of the cylinder).



Tie Bars

Ultraflex® A94 Tie Bar



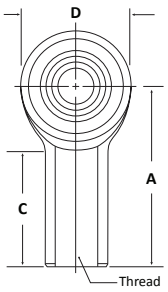
Part No.	Description
84194	A94 Tie Bar Suits UC128 with Twin Engines

- Heavy duty twin engine/single cylinder tie bar kit for use with UC128 outboard cylinders, in the applications with dual cylinder use A90 tie bar.
- Allows to tilt the engines independently.
- Stainless steel components.
- Electropolished stainless steel ball joints.
- Not recommended for applications exceeding 500 HP.
- Adjustable from 660mm (26") to 950mm (37.4") engine centres.

NOTE: As the tiller arm position varies from engine to engine and the distance between two engines is unpredictable, interferences may occur while tilting.

A94 Tie Bar Applications	
Engine	**Power**
Mercury®	135-150-175 Optimax 2 Stroke 200-225 Optimax 2 Stroke 250 PRO XS 135-150-175 Verado 4 Stroke 200 Verado 4 Stroke
Honda®	115-135-150 OHC BF 200 SOHC BF 225 A6
Yamaha®	F115-150-200-225-250 4 Stroke
Evinrude®	E115-130-150-175-200 V6 E200-225-250-300
Suzuki®	DF70-80-90 4 Stroke DF100-115-140-150-175 4 Stroke DF200-250-300 DOHC 4 Stroke

Tie Bar Rod Ends



Part No.	Description
83970	3/8 UNF Stainless Steel Rod End
83971	1/2 UNF Stainless Steel Rod End
83972	5/8 UNF Stainless Steel Rod End

- Ball - 440c Stainless steel head treated.
- Body - Type 303 Stainless steel.
- Liner - Teflon permanently bonded to body ID.

Thread	D	C	A
3/8" UNF	25 mm	38 mm	49 mm
1/2" UNF	33 mm	38 mm	62 mm
5/8" UNF	38 mm	41 mm	67 mm

Hydraulic Fluid Link Valve

Part No.	Description
84220	3/8 Fluid Link Valve

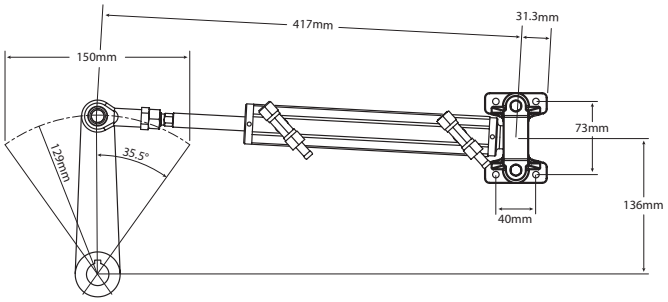
- Fluid link valve for twin engine / twin cylinder applications where a mechanical tie bar is not feasible. Engine centres must be at least 38" wide as engine can periodically miss align.
- Connect using standard KIT-OB or KIT-OB/R5 hoses.

Ultraflex® UC69-I Inboard Cylinder - Only

Part No.	Description
83959	UC69-I Inboard Cylinder

- For inboard engines.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Recommended for inboards up to 8m (26ft) where maximum boat speed do not exceed 25mph (25knots).
- The UC69-I cylinders are recommended for use with UP20 series helms and pre-assembled hoses (Kit OB and Kit OB/R5).

Specifications	83959 - UC69-I
Volume	69 cc - 4.2 cu. in
Torque	32 kgm - 2783 lbs. in
Output force	168 kg - 371 lbs
Inside diameter	25 mm - 0.98”
Stroke	150 mm - 5.9”
3/8” (9.5mm) Fittings	For high pressure flex hose



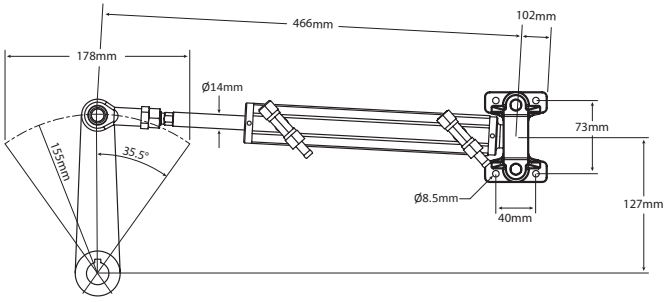
Hydraulic Steering System Ordering Guide							
System	Application	Wheel Turns	Components	Model	Part No.	Qty	Kits
Inboard	Inboards up to 8m (26ft) length and 25mph maximum speed.	3.5 turns	Cylinder Helm pump Hydraulic Oil	UC69-I UP20 OIL 15	83959 83920 84115	1 1 2	83940
			Hose Steering wheel	Hose options Wheel options	Hose options Wheel options	1 1	Not included

Ultraflex® UC116-I Inboard Cylinder - Only

Part No.	Description
83960	UC116-I Inboard Cylinder

- For inboard engines.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Maximum rudder torque 58kgm (5043 lbs. in).
- The UC116-I cylinders are recommended for use with UP25 or UP28 series helms and pre-assembled hoses (Kit OB and Kit OB/R5).
- Nylon tubing 3/8” **84101** can be used as an alternative to the standard KIT-OB hose kit for plumbing the system. For these applications the fitting kit for the additional station is **84112** - KIT95-2S.

Specifications	83960 - UC116-I
Volume	116 cc - 7 cu. in
Torque	58 kgm - 5043 lbs. in
Output force	464 kg - 1023 lbs
Inside diameter	32 mm - 1.25”
Stroke	178 mm - 7”
3/8” (9.5mm) Fittings	For high pressure flex hose



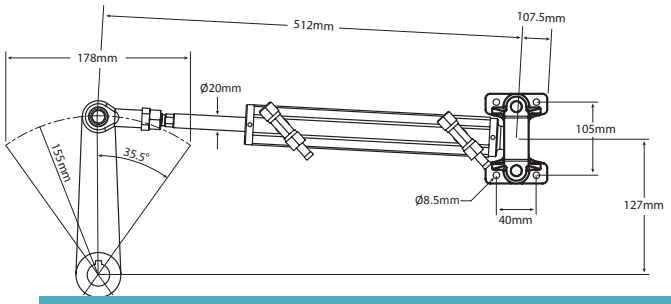
Hydraulic Steering System Ordering Guide							
System	Application	Wheel Turns	Components	Model	Part No.	Qty	Additional Station
Inboard	Max rudder torque: 58kgm (5043 lbs. in)	4.6 (UP25) or 4.1 (UP28)	Cylinder Helm pump Hydraulic Oil	UC69-I UP25 or UP28 OIL 15	83960 83925 or 83928 84115	1 1 3	1 UP25 or UP28 helm pump, 1 KIT OB-2S fitting kit, 1 KIT OB hose Kit, Extra OIL 15, 1 steering wheel
			Hose Steering wheel	Hose options Wheel options	Hose options Wheel options	1 1	

Inboard Cylinders

Ultraflex® UC168-I Inboard Cylinder - Only

Part No.	Description
83961	UC168-I Cylinder

- For inboard engines.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Maximum rudder torque 87 kgm (7565 lbs. in).
- The UC168-I cylinders are recommended for use with UP28 or UP33 series helms and pre-assembled hoses (Kit OB and Kit OB/R5).
- Nylon tubing 3/8" **84101** can be used as an alternative to the standard KIT-OB hose kit for plumbing the system. For these applications the fitting kit for the additional station is **84112** - KIT95-2S.



Specifications	83961 - UC168-I
Volume	168 cc - 10.25 cu.in
Torque	87 kgm - 7565 lbs. in
Output force	673 kg - 1483 lbs
Inside diameter	40 mm - 1.57"
Stroke	178 mm - 7"
3/8" (9.5mm) Fittings	For high pressure flex hose

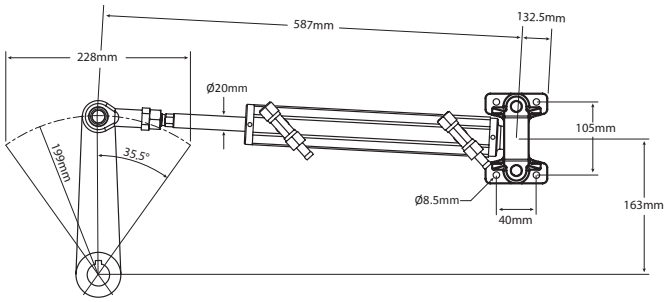
Hydraulic Steering System Ordering Guide

System	Application	Wheel Turns	Components	Model	Part No.	Qty	Additional Station
Inboard	Max rudder torque: 87kgm (7565 lbs. in)	6 (UP28) or 5.1 (UP33)	Cylinder Helm pump Hydraulic Oil	UC168-I UP28 or UP33 OIL 15	83961 83928 or 83933 84115	1 1 3	1 UP28 or UP33 helm pump, 1 KIT OB-2S fitting kit, 1 KIT OB hose Kit, Extra OIL 15, 1 steering wheel
			Hose Steering wheel	Hose options Wheel options	Hose options Wheel options	1 1	

Ultraflex® UC215-I Inboard Cylinder - Only

Part No.	Description
83962	UC215-I Cylinder

- For inboard engines.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Maximum rudder torque 111 kgm (9652 lbs. in).
- The UC215-I cylinders are recommended for use with UP33 or UP39 series helms and pre-assembled hoses (Kit OB and Kit OB/R5).
- Nylon tubing 3/8" **84101** can be used as an alternative to the standard KIT-OB hose kit for plumbing the system. For these applications the fitting kit for the additional station is **84112** - KIT95-2S.



Specifications	83962 - UC215-I
Volume	215 cc - 13.12 cu. in
Torque	111 kgm - 9652 lbs. in
Output force	673 kg - 1483 lbs
Inside diameter	40 mm - 1.57"
Stroke	228 mm - 9"
3/8" (9.5mm) Fittings	For high pressure flex hose

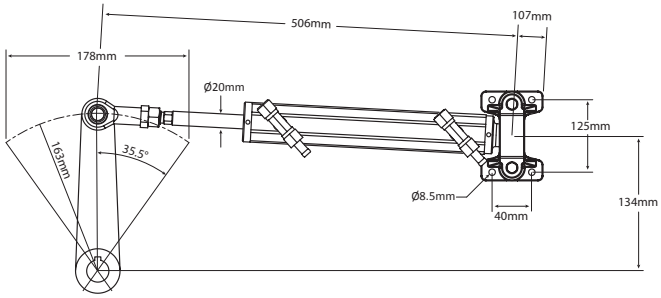
Hydraulic Steering System Ordering Guide

System	Application	Wheel Turns	Components	Model	Part No.	Qty	Additional Station
Inboard	Max rudder torque: 111kgm (9652 lbs. in)	6.5 (UP33) or 5.5 (UP39)	Cylinder Helm pump Hydraulic Oil	UC215-I UP33 or UP39 OIL 15	83962 83933 or 83939 84115	1 1 3	1 UP33 or UP39 helm pump, 1 KIT OB-2S fitting kit, 1 KIT OB hose Kit, Extra OIL 15, 1 steering wheel
			Hose Steering wheel	Hose options Wheel options	Hose options Wheel options	1 1	

Ultraflex® UC293-I Brass Inboard Cylinder - Only

Part No.	Description
83964	UC293-I Brass Cylinder

- For inboard engines.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Maximum rudder torque 146.5 kgm (12816 lbs. in).
- The UC293-I cylinders are recommended for use with UP39 series helms and pre-assembled hoses (Kit OB and Kit OB/R5).
- Nylon tubing 3/8" **84101** can be used as an alternative to the standard KIT-OB hose kit for plumbing the system. For these applications the fitting kit for the additional station is **84112** - KIT95-2S.



Specifications	83964 - UC293-I
Volume	293 cc - 17.8 cu. in
Torque	146.5 kgm - 12816 lbs. in
Output force	1155 kg - 2545 lbs
Inside diameter	50 mm - 1.97"
Stroke	178 mm - 7"
3/8" (9.5mm) Fittings	For high pressure flex hose

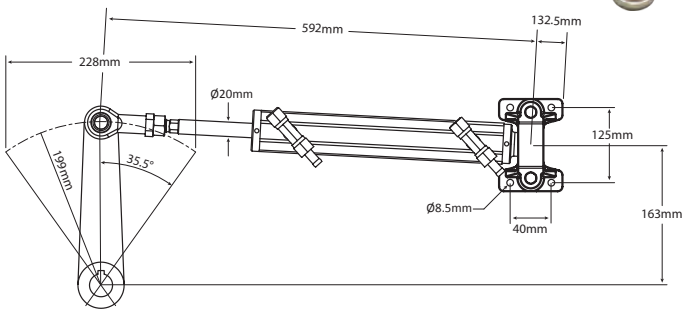
Hydraulic Steering System Ordering Guide

System	Application	Wheel Turns	Components	Model	Part No.	Qty	Additional Station
Inboard	Max rudder torque: 146.5kgm (12816lbs. in)	7.5 (UP39)	Cylinder Helm pump Hydraulic Oil	UC293-I UP39 OIL 15	83964 83939 84115	1 1 3	1 UP39 helm pump, 1 KIT OB-2S fitting kit, 1 KIT OB hose Kit, Extra OIL 15, 1 steering wheel
			Hose Steering wheel	Hose options Wheel options	Hose options Wheel options	1 1	

Ultraflex® UC378-I Brass Inboard Cylinder - Only

Part No.	Description
83963	UC378-I Brass Cylinder

- For inboard engines.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Maximum rudder torque 187.6 kgm(16347lbs. in).
- The UC378-I cylinders are recommended for use with UP39 series helms and 0.5" (12 mm) copper tube.



Specifications	83963 - UC378-I
Volume	376 cc - 22.94 cu. in
Torque	187.6 kgm - 16347 lbs. in
Output force	1155 kg - 2545 lbs
Inside diameter	50 mm - 1.97"
Stroke	228 mm - 9"
Fittings	0.5" (12 mm) copper tube

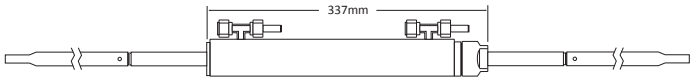
Hydraulic Steering System Ordering Guide

System	Application	Wheel Turns	Components	Model	Part No.	Qty	Additional Station
Inboard	Max rudder torque: 187.6 kgm (16347lbs. in)	9.6 (UP39)	Cylinder Helm pump Hydraulic Oil	UC293-I UP39 OIL 15	83963 **83939** **84115**	1 1 3	1 UP39 helm pump, 0.5" (12 mm) copper tube, Extra OIL 15, 1 steering wheel
			Hose Steering wheel	Hose options Wheel options	Hose options Wheel options	1 1	

Ultraflex® UC133-IOB Sterndrive Cylinder - Only

Part No.	Description
83965	UC133-IOB Cylinder Sterndrive

- For sterndrive engines.
- Balanced: the number of turns lock-to-lock is equal port to starboard or vice-versa.
- Maximum rudder torque 66 kgm (5738 lbs. in).
- The UC215-I cylinders are recommended for use with UP28 or UP33 series helms and pre-assembled hoses (Kit OB and Kit OB/R5).
- 3/8" or 10mm diameter copper tubing can be used as an alternative tubing for plumbing the systems. For these applications a fitting kit **84110** - KIT 95 or **84111** KIT 100 - is required.



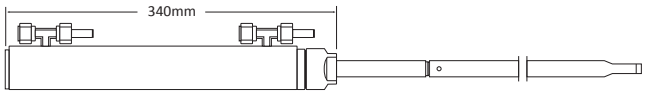
Specifications	83962 - UC215-I
Volume	132 cc - 8 cu. in
Torque	66 kgm - 5738 lbs. in
Output force	464 kg -1023 lbs
Inside diameter	32 mm - 1.25"
Stroke	203 mm - 8"
3/8" (9.5mm) Fittings	For high pressure flex hose

Ultraflex® UC132-OBS Sterndrive Cylinder - Only

Part No.	Description
83914	UC132-OBS Cylinder Sterndrive

- For sterndrive engines.
- Unbalanced: the number of turns lock-to-lock is not equal port to starboard and vice-versa.
- UC132-OBS side mount cylinder features a patented turning nut for a fast and easy installation to the engine tube.
- Clearance required at the engine tube side is 375 mm (14.76").
- Recommended for use where maximum boat speed do not exceed 40mph (40knots).
- The UC132 cylinders are recommended for use with UP25, UP28, UP33 and UP39 series helms and pre-assembled hoses (Kit OB and Kit OB/R5).
- 3/8" or 10mm diameter copper tubing can be used as an alternative tubing for plumbing the systems. For these applications a fitting kit **84110** - KIT 95 or **84111** KIT 100 - is required.

NOTE: UC132-OBS cylinder is not intended for use with 105 Bar (1500psi) SilverSteer Series Helms.



Specifications	83914 - UC132-OBS
Volume	132 / 163 cc - 8 / 9.95 cu. in
Output force	464 / 574 kg - 1023 / 1265 lbs
Inside diameter	32 mm - 1.25"
Stroke	203 mm - 8"
3/8" (9.5mm) Fittings	For high pressure flex hose

Ultraflex® Sterndrive Cylinder Applications

Engine	Year	Model	Sterndrive Cylinder			
			Non Power Assist Engine	Non Power Assist Features and Requirements	Non Power Assist Engine	Power Assist Features and Requirements
MerCruiser®	To date	Alpha Bravo One Bravo Two Bravo Three	UC133-IOB UC133-IOB UC133-IOB UC133-IOB	Balanced cylinder Clearance required at the engine tube side: 21.2” (540 mm)	UC132-OBS UC132-OBS UC132-OBS UC132-OBS	Unbalanced cylinder
Volvo®	To date	**275**	UC168-I	Balanced cylinder	N/A UC132-OBS UC132-OBS N/A N/A UC132-OBS	Unbalanced cylinder
		280 **290** **DP-E** **DP-G** **DP-S**	UC133-IOB[1] UC133-IOB[1] UC133-IOB[2] N/A N/A	Balanced cylinder Clearance required at the engine tube side: 21.2” (540 mm)		

These Sterndrive Cylinder Applications should be used as general reference only and they apply to factory stock sterndrives only. For applications with sterndrive engines not listed above, please contact our Technical Service.

[1] Ultraflex® hydraulic cylinder can be installed as an alternative to a mechanical steering system only.
[2] The Volvo P. No. 872388 adaptor fitting is required for the installation.

Hydraulic Steering System Ordering Guide						
System	Wheel Turns	Components	Model	Part No.	Qty	Additional Station
Sterndrive	Balanced 4.7 Unbalanced 4.7 / 5.8	Cylinder	See above Cylinder Applications		1	1 UP33 or UP39 helm pump, 1 KIT OB-2S fitting kit, 1 KIT OB hose Kit, Extra OIL 15, 1 steering wheel
		Helm pump	UP28	83928	1	
		Hydraulic Oil	OIL 15	84115	3	
		Hose	Hose options	Hose options	1	
		Steering wheel	Wheel options	Wheel options	1	

Hydraulic Steering System Ordering Guide						
System	Wheel Turns	Components	Model	Part No.	Qty	Additional Station
Sterndrive	Balanced 4 Unbalanced 4 or 5	Cylinder	See above Cylinder Applications		1	1 UP33 or UP39 helm pump, 1 KIT OB-2S fitting kit, 1 KIT OB hose Kit, Extra OIL 15, 1 steering wheel
		Helm pump	UP33	83933	1	
		Hydraulic Oil	OIL 15	84115	3	
		Hose	Hose options	Hose options	1	
		Steering wheel	Wheel options	Wheel options	1	

Hydraulic Helm Pumps

UP20 Helm Pumps

Ultraflex® UP20 Front & Tilt Mount Helm Pumps

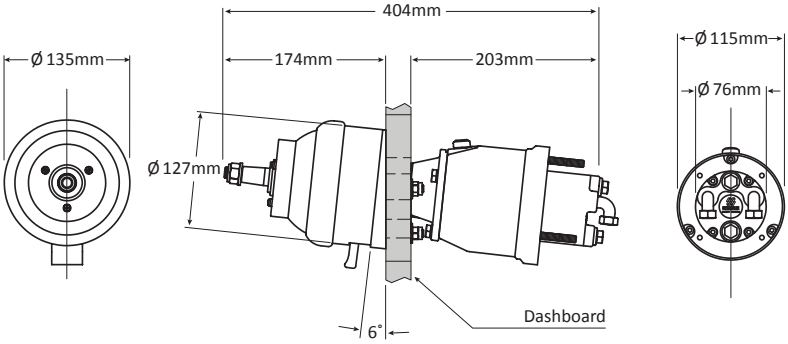
(A) 83920T with
(B) 83533 X52 Tilt Mechanism

Part No.	Model	Mounting	Displacement/ Revolution	No. of Pistons	Relief Valve Setting	Max Wheel Dia (mm)	Weight (kg)
83920	UP20F	Front Mount	20cc - 1.2cu.in	5	70Bar - 1000psi	508mm - 20"	3.9kg
83920T	UP20T	With X52 Tilt	20cc - 1.2cu.in	5	70Bar - 1000psi	406mm - 16"	3.9kg
83533	X52 Tilt Mechanism						
83949	X64 Square Adaptor Flange						

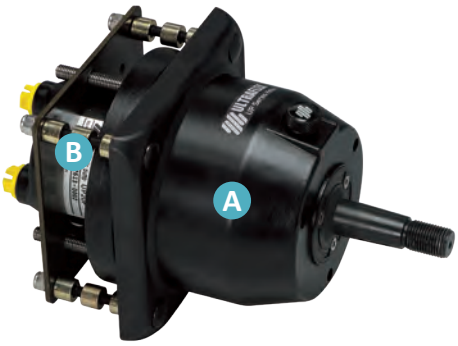
- Available in front and tilt mount helm pumps.
- Built-in lock valve for positive rudder lock.
- Integral relief valve for over-pressure protection.
- 3/4" tapered anodized aluminium shaft.
- Corrosion proof composite housing.
- Easy accessible lock valve and shaft seal for replacement.
- Includes elbow fittings for 3/8" tube.
- For use with UC94-OBF, UC68-OBS and UC69-I cylinders only.
- Tilt mechanism X52 - 83533 for UP20 T helm pump which has a tilt range of 48° and five locking positions.

NOTE: X52 tilt mechanism fits standard Ultraflex® tilt mount rotary and rack and pinion steering helms as well as standard Ultraflex® tilt mount hydraulic pumps. On high performance systems use X70-SVS tilt mechanism.

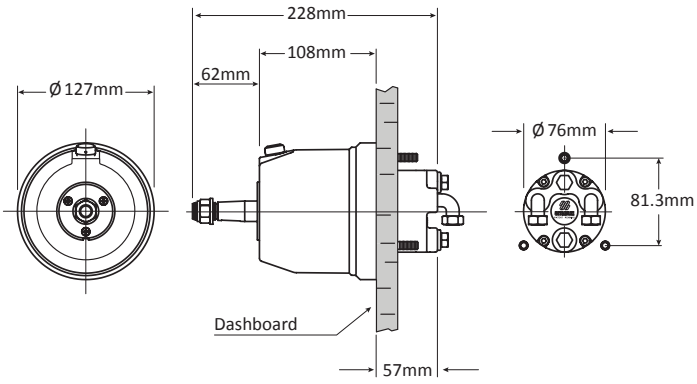
X64 - 83949 square flange allows the UP20F pump to be installed in an intermediate dashboard position.



83920T with 83533
Tilt Mechanism Dimensions in mm

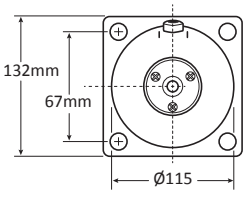


(A) 83920 with (B) 83949
Square Adaptor Flange



83920 Dimensions in mm

X52 has a tilt range of 48°
and five locking positions



83949 Square Adaptor Flange

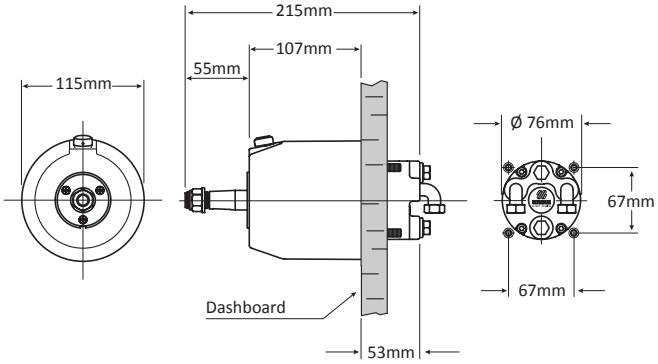
Ultraflex® Front Mount Helm Pumps

Part No.	Model	Mounting	Displacement/ Revolution	No. of Pistons	Relief Valve Setting	Max Wheel Dia (mm)	Weight (kg)
83925	UP25F	Front Mount	25cc - 1.5cu.in	5	70Bar - 1000psi	710mm - 28"	5kg
83928	UP28F	Front Mount	28cc - 1.7cu.in	5	70Bar - 1000psi	710mm - 28"	5kg
83933	UP33F	Front Mount	33cc - 2.0cu.in	7	70Bar - 1000psi	710mm - 28"	5kg
83939	UP39F	Front Mount	39cc - 2.4cu.in	7	70Bar - 1000psi	710mm - 28"	5kg
83954	X57 Round Adaptor Flange suits 83925, 83928, 83933 & 83939						
83949	X64 Square Adaptor Flange suits 83925, 83928, 83933 & 83939						
84108	Kit F - Remote Filler Kit Adapter						

83925, 83928,
83933 & 83939

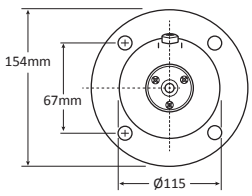
- Available in four different displacement sizes.
- Compact design.
- Ball bearing piston race.
- Built-in lock valve for positive rudder lock.
- Integral relief valve for over-pressure protection.
- 3/4" tapered stainless steel shaft.
- Easily accessible lock valve and shaft seal for replacement.
- Cast iron rotor for greater durability and longer life.
- 1/4" NPT fitting for 3/8" tube.
- Includes elbow fittings.

*NOTE: X64 - **83949** square flange or X57 - **83954** round flange allows the helm pumps to be installed in an intermediate dashboard position.*

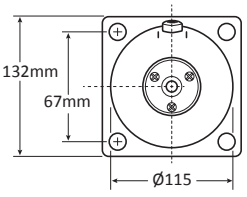


83925, 83928, 83933 &
83939 Dimensions in mm

(A) 83933 with (B) 83954
Round Adaptor Flange



83954 Round Adaptor Flange



83949 Square Adaptor Flange

(A) 83933 with (B) 83949
Square Adaptor Flange

Tilt Mount

Ultraflex® Tilt Mount Helm Pumps

(A) 83925T, 83928T, 83933T, 83939T, with
(B) 83533 X52 Tilt Mechanism

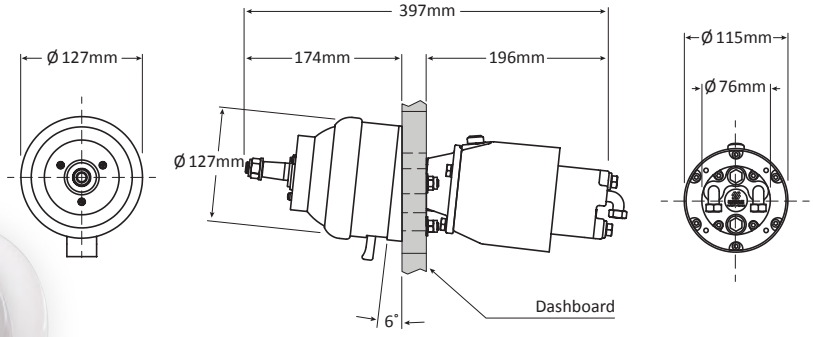
Part No.	Model	Mounting	Displacement/ Revolution	No. of Pistons	Relief Valve Setting	Max Wheel Dia (mm)	Weight (kg)
83925T	UP25T	With X52 Tilt	25cc - 1.5cu.in	5	70Bar - 1000psi	406mm - 16"	5kg
83928T	UP28T	With X52 Tilt	28cc - 1.7cu.in	5	70Bar - 1000psi	406mm - 16"	5kg
83933T	UP33T	With X52 Tilt	33cc - 2.0cu.in	7	70Bar - 1000psi	406mm - 16"	5kg
83939T	UP39T	With X52 Tilt	39cc - 2.4cu.in	7	70Bar - 1000psi	406mm - 16"	5kg
83533	X52 Tilt Mechanism						
84108	Kit F - Remote Filler Kit Adapter						

- Available in four different displacement sizes.
- Compact design.
- Ball bearing piston race.
- Built-in lock valve for positive rudder lock.
- Integral relief valve for over-pressure protection.
- Stainless steel shaft.
- Easily accessible lock valve and shaft seal for replacement.
- Cast iron rotor for greater durability and longer life.
- 1/4" NPT fitting for 3/8" tube.
- Includes elbow fittings.
- UP45 T helm pumps are ideal for dual cylinder, dual engine applications.
- Tilt mechanism X52 - 83533 for UP20 T helm pump which has a tilt range of 48° and five locking positions.

NOTE: X52 tilt mechanism fits standard Ultraflex® tilt mount rotary and rack and pinion steering helms as well as standard Ultraflex® tilt mount hydraulic pumps. On high performance Silver Steer systems use X70-SVS tilt mechanism.

Kit F - 84108 (optional but recommended) Remote Filler Kit Adapter not included.

84108 Remote Filler Kit not included.
Optional but recommended extra.



83925T, 83928T, 83933T, 83939T, with
83533 Tilt Mechanism Dimensions in mm

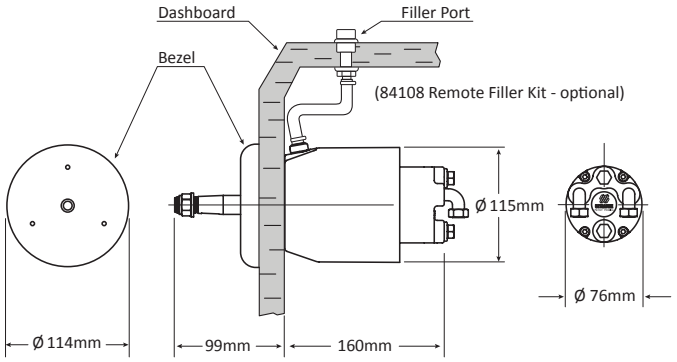
X52 has a tilt range of 48°
and five locking positions

Ultraflex® Rear Mount Helm Pumps

Part No.	Model	Mounting	Displacement/ Revolution	No. of Pistons	Relief Valve Setting	Max Wheel Dia (mm)	Weight (kg)
83928R	UP28R	Rear Mount	28cc - 1.7cu.in	5	70Bar - 1000psi	710mm - 28"	5kg
83933R	UP33R	Rear Mount	33cc - 2.0cu.in	7	70Bar - 1000psi	710mm - 28"	5kg
83955	UP39R	Rear Mount	39cc - 2.4cu.in	7	70Bar - 1000psi	710mm - 28"	5kg
84108	Kit F - Remote Filler Kit Adapter						

- Available in three different displacement sizes.
- Compact design.
- Ball bearing piston race.
- Built-in lock valve for positive rudder lock.
- Integral relief valve for over-pressure protection.
- 3/4" tapered stainless steel shaft.
- Easily accessible lock valve and shaft seal for replacement.
- Cast iron cylinder rotor for greater durability and longer life.
- Complete with elbow fittings and white bezel.

NOTE: Kit F - 84108 (optional but recommended) Remote Filler Kit Adapter not included.



83928R, 83933R & 83955
Dimensions in mm

84108 Remote Filler Kit not included.
Optional but recommended extra.

Ultraflex® SilverSteer™ Front Mount Helm Pumps

High Performance

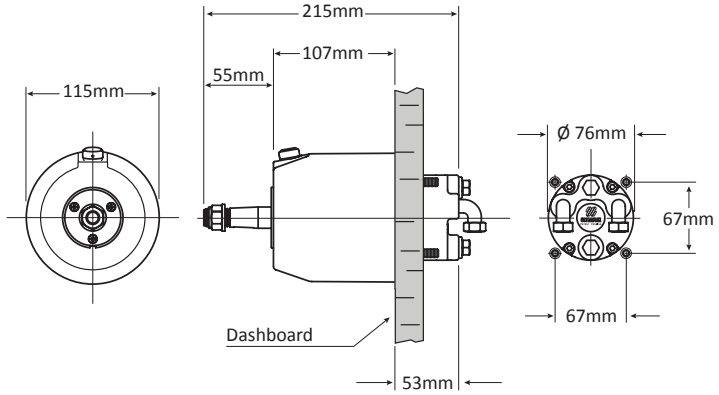
84028, 84033 & 84039

Part No.	Model	Mounting	Displacement/ Revolution	No. of Pistons	Relief Valve Setting	Max Wheel Dia (mm)	Weight (kg)
84028	UP28F-SVS	Front Mount	28cc - 1.7cu.in	5	105Bar - 1500psi	710mm - 28"	5kg
84033	UP33F-SVS	Front Mount	33cc - 2.0cu.in	7	105Bar - 1500psi	710mm - 28"	5kg
84039	UP39F-SVS	Front Mount	39cc - 2.4cu.in	7	105Bar - 1500psi	710mm - 28"	5kg
83954	X57 Round Adaptor Flange suits **84028**, **84033** & **84039**						
83949	X64 Square Adaptor Flange suits **84028**, **84033** & **84039**						
84108	Remote Filler Kit Adapter						

- SilverSteer™ have been specifically designed for high torque applications such as bass boats, flats boats, and boats with shallow dead rise and high horsepower.
- Featuring a 1500 psi check valve and a patented pressure valve that enhances responsiveness, the SilverSteer™ helms will deliver very precise steering at all torque loads.
- Available in three different displacement sizes.
- Compact design.
- Ball bearing piston race.
- Built-in lock valve for positive rudder lock.
- Integral relief valve for over-pressure protection 105Bar - 1500psi.
- 3/4" tapered stainless steel shaft.
- Easily accessible lock valve and shaft seal for replacement.
- Cast iron rotor for greater durability and longer life.
- Includes stainless steel fittings adjustable at 45° for 3/8" tube.

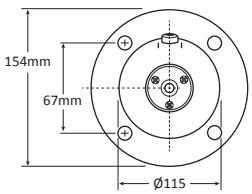
NOTE: Only use SilverSteer™ cylinders and SilverSteer™ hoses, which are also specifically designed for high torque applications.

83954 - Round Adaptor Flange

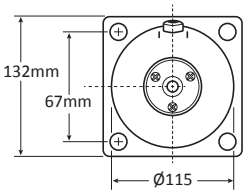


84028, 84033 & 84039
Dimensions in mm

83949 - Square Adaptor Flange



83954 Round Adaptor Flange



83949 Square Adaptor Flange

Ultraflex® SilverSteer™ Tilt Mount Helm Pumps

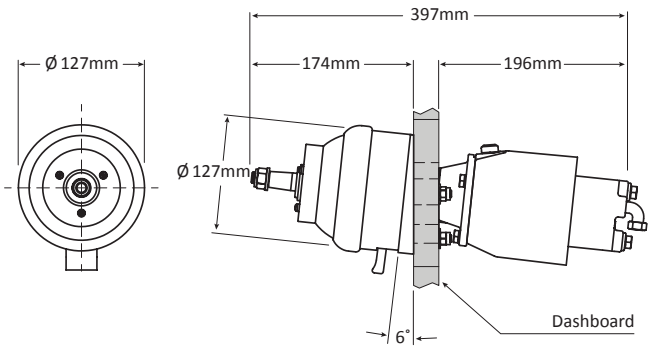
Part No.	Model	Mounting	Displacement/ Revolution	No. of Pistons	Relief Valve Setting	Max Wheel Dia (mm)	Weight (kg)
84028T	UP28T-SVS	With X70 Tilt	28cc - 1.7cu.in	5	70Bar - 1000psi	406mm - 16"	5kg
84033T	UP33T-SVS	With X70 Tilt	33cc - 2.0cu.in	7	70Bar - 1000psi	406mm - 16"	5kg
84039T	UP39T-SVS	With X70 Tilt	39cc - 2.4cu.in	7	70Bar - 1000psi	406mm - 16"	5kg
84027	Spare X70 Tilt Mechanism						
84108	Remote Filler Kit Adapter						

(A) 84028T, 84033T, 84039T, with
(B) 84027 X70 Tilt Mechanism

- SilverSteer™ have been specifically designed for high torque applications such as bass boats, flats boats, and boats with shallow dead rise and high horsepower.
- Featuring a 1500 psi check valve and a patented pressure valve that enhances responsiveness, the SilverSteer™ helms will deliver very precise steering at all torque loads.
- Available in three different displacement sizes.
- Compact design.
- Ball bearing piston race.
- Built-in lock valve for positive rudder lock.
- Integral relief valve for over-pressure protection.
- Stainless steel shaft.
- Easily accessible lock valve and shaft seal for replacement.
- Cast iron rotor for greater durability and longer life.
- 1/4" NPT fitting for 3/8" tube.
- Includes elbow fittings.
- UP39T-SVS helm pumps are ideal for dual cylinder, dual engine applications.
- Tilt mechanism X70 - 84027 has a tilt range of 48° and five locking positions.

*NOTE: On high performance SilverSteer™ systems use X70-SVS - **84027** tilt mechanism only.*

*Kit F - **84108** (optional but recommended) Remote Filler Kit Adapter not included.*



84028T, 84033T, 84039T, with 84027 Tilt Mechanism Dimensions in mm

84108 Remote Filler Kit not included.
Optional but recommended extra.

X70 has a tilt range of 48°
and five locking positions

Steering System - Power Assisted

MasterDrive™ System Introduction

Ultraflex® MasterDrive™ Power Assisted Outboard Steering System

Effortless steering for the most demanding applications!
For the ultimate in steering performance, look no further then the MasterDrive™ power assisted outboard steering system which delivers fingertip control regardless of speed or torque conditions. With installation similar to conventional manual hydraulic system, the MasterDrive™ eliminates torque at the steering wheel, yet the system maintains functional manual hydraulic steering override in the event of a loss of power.

MasterDrive™ System Features:

- Three different selectable levels of power give the boater the desired feeling on the wheel (Patented).
- Automatically reverts to manual mode in case of power loss.
- High efficiency, low Amp draw.
- Immediate control in any sea conditions through the system always running.
- Equipped with safety switch ON/OFF (Smart Button).
- Can be used on dual station installations.
- Suitable for use with autopilot.
- Low noise.
- Voltage: 12VDC.
- CE marked in conformity with ABYC P21, ISO 10592 safety standards.
- Ignition protected (SAE J-1171 and UNI EN 28846).

When selecting a MasterDrive™ System please consult a sales representative at Sam Allen Wholesale or use the application selection guide below to select the most appropriate MasterDrive™ System for your application. Due to the vast number of option we have not created any kits

System Components for Single Cylinder application:

1. 1 x Front or Tilt Mount MasterDrive™ Helm UH - **84032** to **84032T** refer to “Ultraflex® MasterDrive™ UH - Power Assisted Helm Pumps” on page 467.
2. 1 x Power Unit UPMD - **84045**, 15ft wiring harness included refer to “Ultraflex® MasterDrive™ UPMD - Power Assisted Helm Pump Unit” on page 467.
3. 1 x Silversteer™ Steering Cylinder UC128-SVS - **83916/1** to **83916/3** refer to “SilverSteer™ Front Mount Cylinders” on page 448.
4. 1 x User Interface UCMD - **84046** refer to”Ultraflex® Master Drive™ UCMD - Switch Panel” on page 468.
5. 1 x KIT OBMD - **84360** to **84370** high pressure anti-vibration hose kit complete with pre-assembled fittings refer to “Ultraflex® Anti Vibration Hose Kit” on page 468.
6. 1 x KIT OB-SVS SilverSteer™ - **84300** to **84314** high pressure hose kit complete with pre-assembled fittings refer to”Ultraflex® OB-SVS Silver Steer™ Kevlar™ Hydraulic Hose Kit” on page 444.
8. 4 x Hydraulic Oil.

Optional Components:

- 1 x Tilt mechanism X66 - **84042** suitable for tilt mount helm. Tilt range of 48° and five locking positions.
- 1 x Dual cylinder application Tie Bar refer to “Tie Bars” on page 452.
- 1 x Steeing Wheel refer to “Steering Wheels” on page 417.

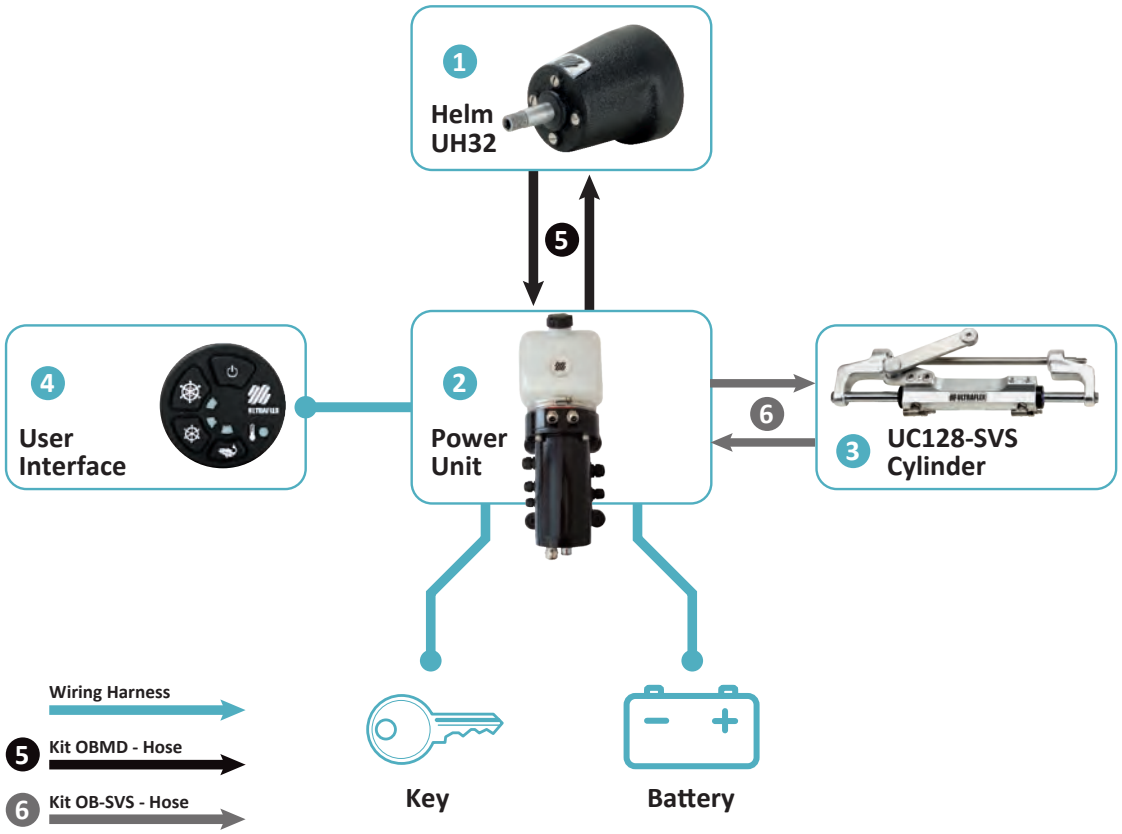
System Components for Dual Cylinder application:

1. 1 x Front or Tilt Mount MasterDrive™ Helm UH - **84040** to **84042T** refer to “Ultraflex® MasterDrive™ UH - Power Assisted Helm Pumps” on page 467.
2. 1 x Power Unit UPMD - **84045**, 15ft wiring harness included refer to “Ultraflex® MasterDrive™ UPMD - Power Assisted Helm Pump Unit” on page 467.
3. 1 x Silversteer™ Steering Cylinder UC128-SVS - **83916/1** to **83916/3** refer to “SilverSteer™ Front Mount Cylinders” on page 448.
4. 1 x User Interface UCMD - **84046** refer to”Ultraflex® Master Drive™ UCMD - Switch Panel” on page 468.
5. 1 x KIT OBMD - **84360** to **84370** high pressure anti-vibration hose kit complete with pre-assembled fittings refer to “Ultraflex® Anti Vibration Hose Kit” on page 468.
6. 1 x KIT OB-SVS SilverSteer™ - **84300** to **84314** high pressure hose kit complete with pre-assembled fittings refer to”Ultraflex® OB-SVS Silver Steer™ Kevlar™ Hydraulic Hose Kit” on page 444.
7. 1 x KIT OB-2C-SVS SilverSteer™ - **84340** to **84344** high pressure hose kit complete with pre-assembled fittings for cylinder connection (dual cylinder applications only) refer to “Ultraflex® Silver Steer™ Kevlar™ Dual Engine / Dual Cylinder Connection Kits” on page 444.
8. 4 x Hydraulic Oil.

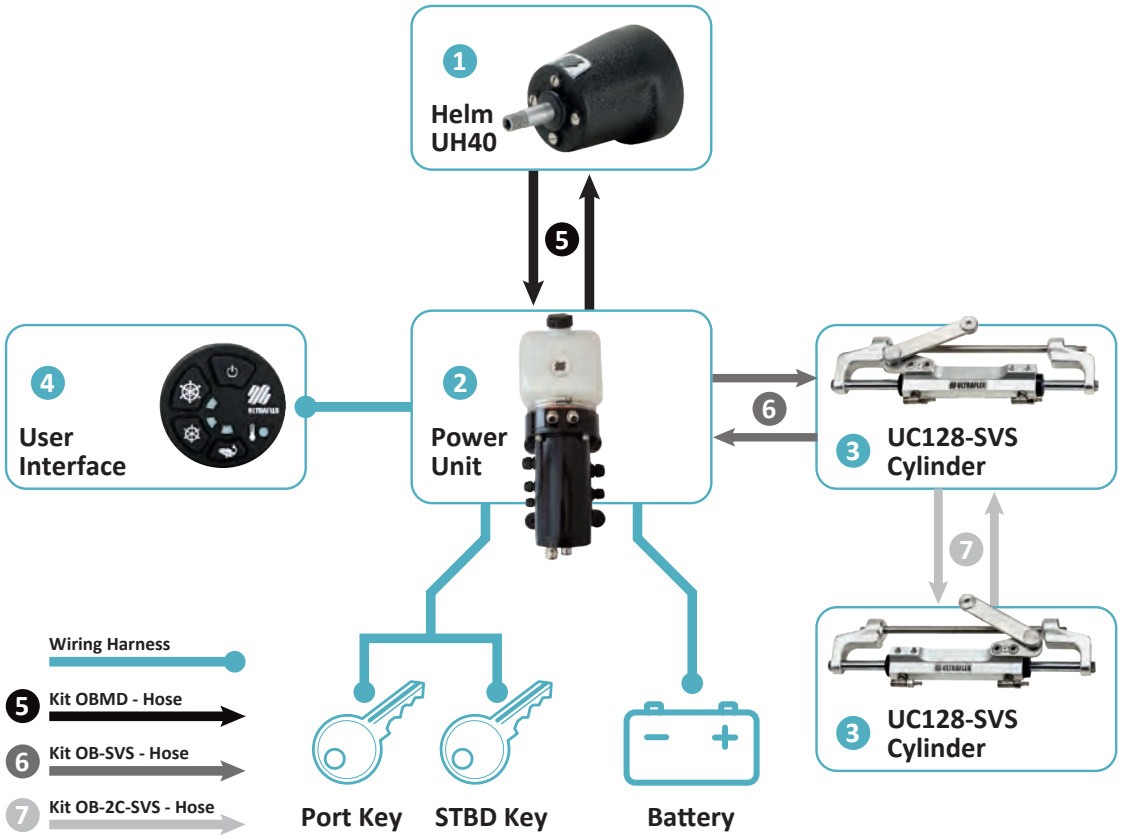
Optional Components:

- 1 x Tilt mechanism X66 - **84042** suitable for tilt mount helm. Tilt range of 48° and five locking positions.
- 1 x Dual cylinder application Tie Bar refer to “Tie Bars” on page 452.
- 1 x Steeing Wheel refer to “Steering Wheels” on page 417.

Ultraflex® MasterDrive™ Single Cylinder Application



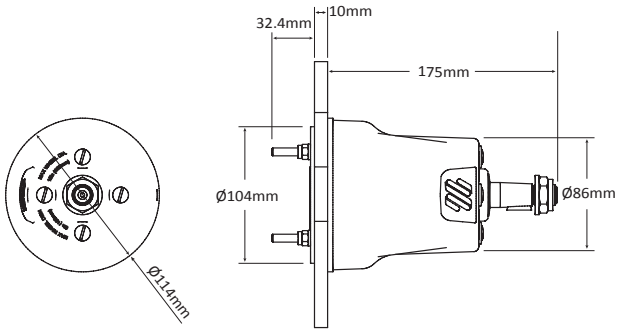
Ultraflex® MasterDrive™ Dual Cylinder Application



Ultraflex® MasterDrive™ UH - Power Assisted Helm Pumps

Premium

Part No.	Model	Mounting	Displacement/ Revolution	No. of Turns Lock to Lock	Max Wheel Dia (mm)	No. of Stations
84032	UH32-F	Front Mount	32cc - 1.95cu.in	3.75 turns single cylinder	406mm - 16"	1
84032T	UH32-T	With X66 Tilt	32cc - 1.95cu.in	3.75 turns single cylinder	406mm - 16"	1
84040	UH40-F	Front Mount	40cc - 2.44cu.in	6 turns dual cylinder	406mm - 16"	1
84041	UHD40-F	Front Mount	40cc - 2.44cu.in	6 turns dual cylinder	406mm - 16"	2
84040T	UH40-T	With X66 Tilt	40cc - 2.44cu.in	6 turns dual cylinder	406mm - 16"	1
84042	Spare X66 Tilt Mechanism					



84032, 84032T 84040 & 84040T
Dimensions in mm

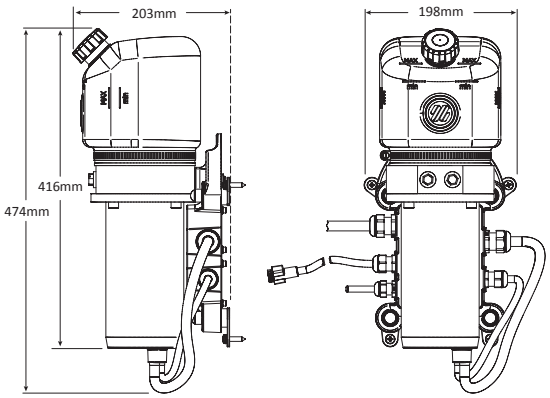
- Available in two different displacement sizes: 32cc (1.95 cu.in) and 40cc (2.44 cu.in).
- Front Mount and Tilt Mount versions.
- Dual station installation version (front mount, 40cc displacement only).
- Built-in relief valve.
- 3/4" tapered shaft.
- Corrosion resistant painted body.
- Waterproof.
- Tilt Mount version is suitable for use with X66 - **84042** tilt mechanism.

Ultraflex® MasterDrive™ UPMD - Power Assisted Helm Pump Unit

Premium

Part No.	Description
84045	UPMD - Power Assisted Helm Pump Unit

- 12VDC Motor.
- 45° swiveling fittings for easy installation.
- Semitransparent 0,5 litre (0.11gal) tank gives immediate level vision.
- Vented filler plug.
- Wall or floor mount.
- Black galvanized motor case, salt water resistant.
- 4.5 m (15') Wiring Harness included.
- IP67 waterproof.
- Ignition protected (SAE J-1171 and UNI EN 28846).



84045 - Dimensions in mm

Ultraflex® Master Drive™ UCMD - Switch Panel

Part No.	Description
84046	UCMD - Switch Panel for Power Assist

Premium

- Safety switch ON/OFF (smart button).
- Three different power levels with light indicator (Patented).
- Motor temperature visual indicator.
- Twin engine key selection included.
- Lighted panel for stand-by position.
- Plug-in wiring harness.
- Suitable for a second station installation.

Ultraflex® Anti Vibration Hose Kit

Part No.	Description
84360	OBMD 3.5m (11.5ft) Anti Vibration Hose Kit
84362	OBMD 4m (13.1ft) Anti Vibration Hose Kit
84364	OBMD 4.5m (14.8ft) Anti Vibration Hose Kit
84366	OBMD 5m (16.4ft) Anti Vibration Hose Kit
84368	OBMD 5.5m (18ft) Anti Vibration Hose Kit
84370	OBMD 6m (17.7ft) Anti Vibration Hose Kit

Premium

- Two high pressure stranded flexible hoses with pre-crimped fittings and bend restrictors on both ends.
- Lenghts available from 3.5m (11.5ft) to 6m (17.7ft) in 0.5m (1.6ft) increments.

Ultraflex® OB-SVS Silver Steer™ Kevlar™ Hydraulic Hose Kit

Part No.	Description
84300	OB-SVS 5m (16.4ft) Hose Kit Pair
84302	OB-SVS 5.5m (18ft) Hose Kit Pair
84304	OB-SVS 6m (17.7ft) Hose Kit Pair
84306	OB-SVS 6.5m (21.3ft) Hose Kit Pair
84308	OB-SVS 7m (22.9ft) Hose Kit Pair
84310	OB-SVS 7.5m (24.6ft) Hose Kit Pair
84312	OB-SVS 8m (26.3ft) Hose Kit Pair
84314	OB-SVS 9m (29.5ft) Hose Kit Pair

High Performance

- Two high pressure Kevlar™ stranded flexible hoses with pre-crimped fittings and bend restrictors on both ends.
- Recommended for use with all Ultraflex® SilverSteer™ helms with 1500psi relief valves.
- Lenghts available from 5m (16.4ft) to 9m (29.5ft) in 0.5m (1.6ft) increments.

Ultraflex® Silver Steer™ Kevlar™ Dual Engine / Dual Cylinder Connection Kits

Part No.	Description
84340	OB-2C-SVS 0.7m (2.3ft) Hose Connection Kit Pair
84342	OB-2C-SVS 0.9m (2.95ft) Hose Connection Kit Pair
84344	OB-2C-SVS 1.2m (3.95ft) Hose Connection Kit Pair

High Performance

- Two high pressure Kevlar™ stranded flexible hoses with pre-crimped fittings and bend restrictors on both ends.
- Recommended for use with all Ultraflex® SilverSteer™ helms with 1500psi relief valves.
- Available in 0.7m (2.3ft), 0.9m (2.95ft) and 1.2m (3.95ft).
- Recommended for use with the R9 - bulkhead kit for dual hose applications, available in black - **84278**, white - **84279** or chrome - **84280** finish refer to “Ultraflex® R9 - Outboard Well Bulkhead Hose Kits” on page 469.

Hydraulic Steering Accessories

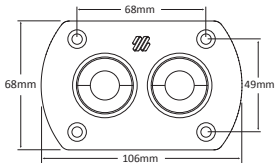
Hose Fittings

Ultraflex® R8 - Through Outboard Well Bulkhead Hose Kits

Premium

84270

84271



Part No.	Description
84270	R8B - Black Through Outboard Well Bulkhead Hose Kit For Dual Hose
84271	R8CH - Chrome Through Outboard Well Bulkhead Hose Kit For Dual Hose

- Connection flange available with a chrome or black finish.
- Suitable for fibreglass, polyethlene and aluminium boats.
- Reduces hose kinking.

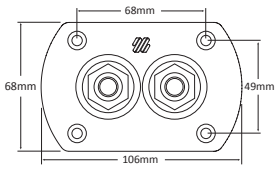
Ultraflex® R9 - Outboard Well Bulkhead Hose Kits

Premium

84278

84279

84280

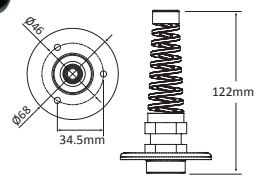


Part No.	Description
84278	R9B - Black Bulkhead Kit For Dual Hose
84279	R9W - White Bulkhead Kit For Dual Hose
84280	R9CH - Chrome Bulkhead Kit For Dual Hose

- Available in black, white or chrome finish.
- Suitable for fibreglass, polyethlene and aluminium boats.
- Reduces risk of corrosion on aluminium boats caused from chrome fittings touching aluminium and paintwork.
- Reduces installation time for bulkhead fittings.
- 3/8" BSP to suit all standard hydraulic nut & olives.
- Chrome plated brass threaded fittings, ABS plastic flange supplied with 4 x stainless steel counter sunk self tapping screws.

NOTE: 5/16" ID HiFlex heavy duty hoses to be used from 84278 transom fitting to hydraulic ram to reduce the chance of hydraulic lines being kinked.

Ultraflex® Strain Relief Hose Kit



Part No.	Description
84119	R5 - Strain Relief Hose Kit

- R5 kit distributes strain from bends in hose.
- It features a water tight gripper fitting and a bulkhead fitting flange for hose protection.

Ultraflex® Bulkhead Fitting Kit

Bulkhead fitting kit

Part No.	Description
84139	R7 - 3/4" Bulkhead fitting kit for single cylinder installations.

- R7 kit includes two assemblies as illustrated per kit.

Ultraflex® Brass Hydraulic Fitting

Part No.	Description
84112	3/8" O.D. Additional Station Fitting Kit
84116	Straight connector fitting suits helm & 3/8" O.D. tube, includes olive.
84117	Elbow connector fitting suits helm and 3/8" O.D. tube, includes olive
84118	Tee fitting suits 3/8" O.D. tube, includes olive
83952	Bleed Tee suits cylinders & 3/8" O.D. tube Includes olive

84112

84116

84117

84118

83952

Ultraflex® Brass Hydraulic Fitting

Part No.	Description
84103	Brass fittings for use with 84102A 5/16" I.D. hydraulic hose (end output size = 3/8" O.D.) in outboard applications (2 required for each hose)
84104	Hose Bend Restrictor Kit for use with 84102A Ultraflex® 5/16" I.D. High Flex Hose (2 per Kit)

84103

84104

Ultraflex® CP 3/8" Nut & Olive Assembly

Part No.	Description
84137	3/8" Nut & Olive Assembly suits Steering Kits
84138	CP 3/8" Nut & Olive Assembly suits Hydraulic Cylinders

- Suits **84101, 84182** and **84184** refer to"3/8"O.D. Hydraulic Nylon Tubing" on page 442**.**

84137

84138

Ultraflex® Adjustable Bleed T For Cylinder

Part No.	Description
83957	3/8" (9.5 mm) Adjustable Bleed T For Cylinder

- Nickel plated, for all cylinders except UC94-OBF with serial number prior to 30 1156 000001.

Hydraulic Fluid Link Valve

Part No.	Description
84220	3/8 Fluid Link Valve

- Fluid link valve for twin engine / twin cylinder applications where a mechanical tie bar is not feasible. Engine centres must be at least 38" wide as engine can periodically miss align.
- Connect using standard KIT-OB or KIT-OB/R5 hoses.

Hydraulic Fluid Link Valve

Part No.	Description
84200	Purging Bubble Buster
84201	Extension Kit to suit Bubble Buster

- Reduce time and simplify purging hydraulic steering systems with the self contained and portable BubbleBuster™ purging unit.
- Attach the hoses using the quick connect fittings to the helm and cylinder and with the push of a button the BubbleBuster™ begins cycling oil throughout the entire systems free of air.
- The system features a ZeroEmulsion pump, a 4 quart capacity reservoir and is compatible with competing helms and cylinders.

Hydraulic Accessories

Ultraflex® Filler Plug Kit

84106

84107

Part No.	Description
84106	Vented Filler Plug Kit
84107	Non-Vented Filler Plug Kit

- For use with second station helm.

Ultraflex® Remote Filler Kit

Part No.	Description
84108	Kit F - Remote Filler Kit For Use With Rear Mounted Helms

Ultraflex® Hydraulic Oil

Part No.	Description
84115	OL 150 - Hydraulic Oil

- Hydraulic Oil sold in 1 litre (0.26 gallons) containers.

Ultraflex® Lock Valve Kit

Part No.	Description
84134	Lock Valve Kit suits All Helm Pumps

Ultraflex® Shaft Seal Kit

Part No.	Description
84135	Shaft Seal Kit suits All Helm Pumps

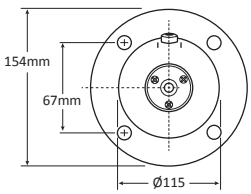
Ultraflex® Seal and 'O' Ring Kit

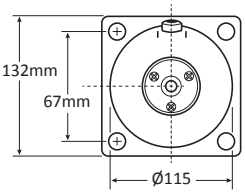
Part No.	Description
84136	Seal and 'O' Ring Kit suits UP20 Helm Pumps

Ultraflex® Recess Adaptor/Dress Flange

83954

83949





Part No.	Description
83954	X57 Round Adaptor Flange
83949	X64 Square Adaptor Flange

- X57 and X64 both suit the 83925, 83928, 83933 and 83939 hydraulic helm pumps.
- Used for recessing helm into dash or dress flange.

Ultraflex® Suzuki Kit

Part No.	Description
83919	Suzuki Kit 98-2008 Suits 83918/1

- Suzuki® engines built from 1998 to 2008 installing UC81-OBF/1, UC94-OBF/1, UC128-OBF/1, UC128/1-SVS cylinder require this optional kit.

Ultraflex® UC94-OBF Cylinder Spares

Part No.	Description
84204	Starboard End Cap suits UC94-OBF Cylinder
84205	Port Cap suits UC94-OBF Cylinder
84206	Rod Seal suits UC94-OBF Cylinder
84125	Seal Kit suits UC94-OBF Cylinder
84127	Stainless Steel Tab Washer suits UC94-OBF Cylinder

84204

84205

84206

84127

84125

Ultraflex® UC128/UC94-OBF Cylinder Spares

Part No.	Description
84132	Spacer Kit suits UC128/UC94-OBF Cylinder
84133	Bull Horn Mounting Bracket suits UC128/UC94-OBF Cylinder

84132

84133

Ultraflex® UC128-OBF Cylinder Spares

Part No.	Description
84130	Rod seal suits UC128-OBF Cylinder
84129	Seal Kit suits UC128-OBF Cylinder
84128	Stainless Steel Tab Washer suits UC128-OBF Cylinder

84130

84129

84128

Ultraflex® UC128-OBF Cylinder Link Arms

Part No.	Description
84122	LA1 - Link Arm for UC128-OBF/1 Cylinder
84123	LA2 - Link Arm for UC128-OBF/2 Cylinder
84124	LA3 - Link Arm for UC128-OBF/3 Cylinder

- **Warning:** LA1, LA2 and LA3 link arm kits are recommended for use on the first installation only and not as a retrofit. Installation has to be made by qualified technicians only.
- Refer to tightening load described in the Installation Manual and mounting instructions supplied with the products.

84122 84123 84123

Ultraflex® UC132-OBS Spares

Part No.	Description
84215	Rod Hole End Cap suits UC132-OBS
84216	Sealed End Cap suits UC132-OBS
84217	Rod Seal suits UC132-OBS
84126	Seal Kit suits UC132-OBS

84215 84216 84217 84126

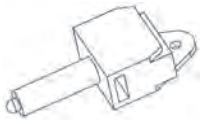
Engine Controls

Side Mount Engine Controls

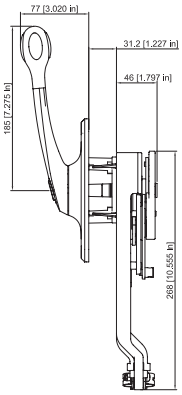
Ultraflex® Stainless Steel Single Lever Side Mount Control - Dual Function

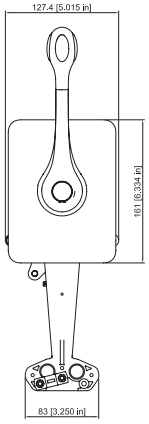
83838

83839



83673





Part No.	Description
83838	B400 Stainless Steel Side Mount Control - Full Mechanical Version
83839	B400-ETC Stainless Steel Side Mount Control - Patented Hybrid Version
83673	X41 Neutral Safety Switch (Optional)

- The B400 has an universal control mechanism that allows for both "push" or "pull" for throttle and shift, push button warm up.
- The patented B401-ETC hybrid version can control the shift with a mechanical cable and the throttle via 0-5V electric signal. The output signal is set by the installer; which is operated through dip-switches placed under the control box.
- Sleek modern design is ideal for sailboats.
- 316G stainless steel lever and flange for a better resistance in the marine environment.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Can be installed horizontally or vertically, on the starboard or port side of the boat.
- Provided with a brake tension release system easily adjustable.
- Push-in button for throttle operation in neutral for engine warm up.
- Neutral safety switch X41 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X41 safety switch is installed.

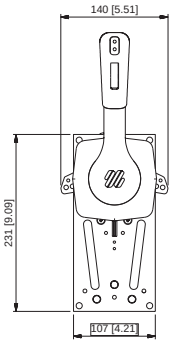
For use with engine control cables:

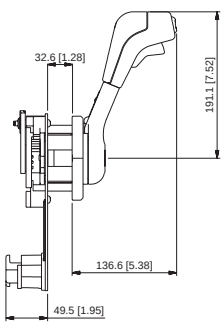
- Universal C33, C8 and MACH Zero cables require no connection kit.
- C14, MACH 14 cables require K71 - **83631** connection kit.
- C5, C16. MACH 5 cables require K72 - **83633** connection kit.
- C36 cable require K73 - **83634** connection kit.

Ultraflex® Chrome Single Lever Side Mount Control - Dual Function

83851

83670





Part No.	Description
83851	B310CH Chrome Side Mount Control with Positive Lock-In Neutral and Trim Switch
83670	X12 Neutral Safety Switch (Optional)

- **Dual Function Engine Controls:** single lever operates both throttle and shift.
- Suitable for any type of boats with outboard, inboard or I/O power plants.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Can be installed horizontally or vertically, on the starboard or port side of the boat.
- Provided with a brake tension release system adjustable from outside.
- Pull-out handle disengages shift for engine warm up.
- All models are provided with a power trim switch conveniently located in the handle grip that enables an easy tilting of the engine.
- Provided with positive lock-in neutral to prevent accidental gear engagement.
- Neutral safety switch X12 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 safety switch is installed.

For use with engine control cables:

- Universal C33, C8, MACH Zero, C14 and MACH 14 cables require no connection kit.
- C5, C16 and MACH 5 cables require K35 - 83637 connection kit.

Ultraflex® Painted Aluminium Single Lever Side Mount Controls - Dual Function

Part No.	Description
83855	B89 Painted Aluminium Side Mount Control - Ivory Finish with Positive Lock-In Neutral
83858	B90 Painted Aluminium Side Mount Control - Black Finish with Positive Lock-In Neutral
83670	X12 Neutral Safety Switch (Optional)

- **Dual Function Engine Controls:** single lever operates both throttle and shift.
- Suitable for any type of boats with outboard, inboard or I/O power plants.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Can be installed horizontally or vertically, on the starboard or port side of the boat. Made of painted marine aluminium.
- Pull-out handle disengages shift for warm-up.
- Neutral safety switch X12 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 safety switch is installed.
- Provided with a positive lock-in neutral to prevent accidental gear engagement.

For use with engine control cables:

- Universal C33, C8, MACH Zero, C14 and MACH 14 cables requires no connection kit.
- C5, C16 and MACH 5 cables require K35 - 83637 connection kit.

83855

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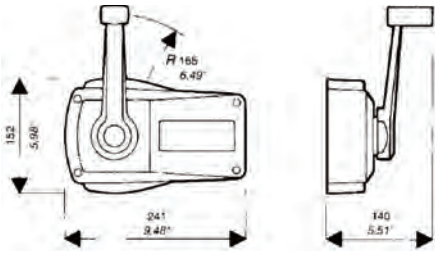
Lock-in neutral



Ultraflex® Painted Aluminium Single Lever Side Mount Controls - Dual Function

Part No.	Description
83845	B183 Painted Aluminium Side Mount Control, Positive Lock-In Neutral - with Installation Kit
83847	B184 Painted Aluminium Side Mount Control, Positive Lock-In Neutral and Trim Switch - with Installation Kit
83850	B85 Painted Aluminium Side Mount Control, smooth design for use on sailboats Positive Lock-In Neutral - with Installation Kit
83670	X12 Neutral Safety Switch (Optional)

- **Dual Function Engine Controls:** single lever operates both throttle and shift.
- Suitable for any type of boats with outboard, inboard or I/O power plants.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Can be installed horizontally or vertically, on the starboard or port side of the boat.
- The lever assembly is made of painted marine aluminium.
- Provided with a brake tension release system adjustable from outside.
- Pull-out handle disengages shift for warm-up.
- Neutral safety switch X12 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 safety switch is installed.
- All models are provided with positive lock-in neutral to prevent accidental gear engagement.
- B184 model is provided with a power trim switch conveniently located in the handle grip that enables an easy tilting of the engine.

For use with engine control cables:

- Universal C33, C8, MACH Zero, C14 and MACH 14 cables requires no connection kit.
- C5, C16 and MACH 5 cables require K35 - 83637 connection kit.

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83847

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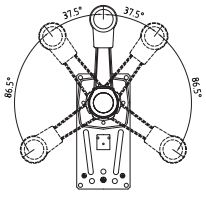
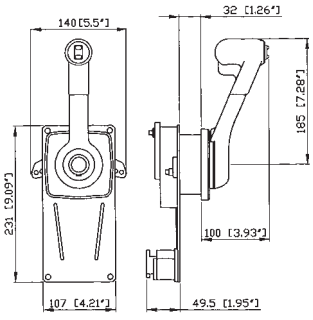
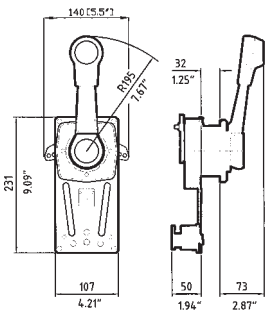


83670



83845 & 83847



83850

Top Mount Engine Controls

Ultraflex® Low Profile Top Mount Chrome Plated Controls - Dual Function

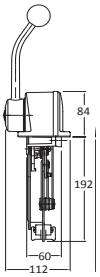
Part No.	Description
83301C	B301CR Single Lever Control for One Engine, Chrome Plated
83302C	B302CR Dual Lever Control for Two Engines, Chrome Plated
83301B	B301B Single Lever Control for One Engine, Black Dome, Chrome Plated Lever
83302B	B301B Dual Lever Control for Two Engines, Black Dome, Chrome Plated Lever
83670	X12 Neutral Safety Switch (Optional) 1 per Engine

- **Dual Function Engine Controls:** available in single or dual lever, operates both throttle and shift (dual lever for two engines).
- Suitable for any type of boats with outboard, inboard or I/O power plants.
- Compact single lever controls offering a unique low profile style compared to other controls available on the market.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Made of marine aluminium, chrome plated or powder coat finish.
- Push in button disengages shift for warm-up.
- Neutral safety switch X12 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 safety switch is installed.
- K59 connection kit is supplied with B301CR, B302CR, B301B and B301B.

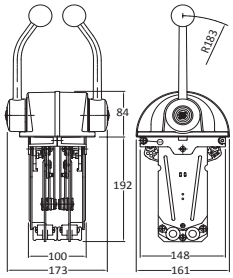
For use with engine control cables:

- Universal C33, C8 and MACH Zero cables require K59 connection kit (supplied).
- C14 and MACH 14 cables require no connection kit.
- C5, C16 and MACH 5 cables require a K60 connection kit.
- C22 cables require K61 connection kit.
- C36 cables require K62 connection kit.

83670



83301



83302

Ultraflex® Top Mount Chrome Plated Controls - Dual Function

83645 83650

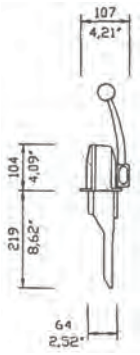
Part No.	Description
83645	B103 Single Lever / Dual Function for One Engine.
83650	B104 Dual Lever / Dual Function for Two Engines.
83675	X43 Neutral Safety Switch (Optional) 1 per Engine

- **Dual Function Engine Controls:** available in single or dual lever, operates both throttle and shift (dual lever for two engines).
- Suitable for any type of boats with outboard, inboard or I/O power plants.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Made of chrome plated marine aluminium.
- Pull-out handle disengages shift for warm-up.
- Neutral safety switch X43 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X43 safety switch is installed.

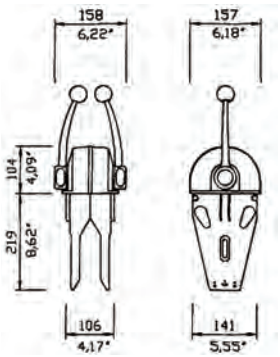
For use with engine control cables:

- Universal C33, C8 and MACH Zero cables require no connection kit.
- C22 cables require K33 connection kit.

83675



83645



83650

Ultraflex® Top Mount Controls - Dual Function

Part No.	Description
83825	B73 Single Lever Control for One Engine, Powder Coated Dome, Chrome Plated Lever
83830	B74 Twin Lever Control for Two Engines, Powder Coated Dome, Chrome Plated Lever
83670	X12 Neutral Safety Switch (Optional) 1 per Engine

- **Dual Function Engine Controls:** available in single or dual lever, operates both throttle and shift (dual lever for two engines).
- Suitable for any type of boats with outboard, inboard or I/O power plants.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Made of marine aluminium, chrome plated or powder coat finish.
- Pull-out handle disengages shift for warm up.
- Neutral safety switch X12 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 safety switch is installed.
- Power trim switch conveniently located in the handle grip enables for easy tilting of the engine.

For use with engine control cables:

- Universal C33, C8, C14, MACH Zero and MACH 14 cables require no connection kit.
- C5, C16 and MACH 5 cables require a K35 - 83637 connection kit.

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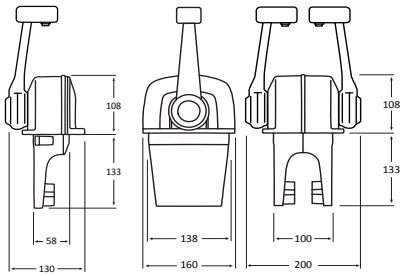
Trim



83825 83830

Ultraflex® Top Mount Controls - Dual Function

Part No.	Description
83832	B665 Single Lever Control for One Engine, Chrome Plated
83833	B666 Twin Lever Control for Two Engines, Chrome Plated
83670	X12 Neutral Safety Switch (Optional) 1 per Engine

- **Dual Function Engine Controls:** available in single or dual lever, operates both throttle and shift (dual lever for two engines).
- Suitable for any type of boats with outboard, inboard or I/O power plants.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Made of marine aluminium, chrome plated or powder coat finish.
- Pull-out handle disengages shift for warm up.
- Neutral safety switch X12 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 safety switch is installed
- Provided with a positive lock-in neutral to prevent accidental gear engagement.

For use with engine control cables:

- Universal C33, C8, C14, MACH Zero and MACH 14 cables require no connection kit.
- C5, C16 and MACH 5 cables require a K35 - 83637 connection kit.

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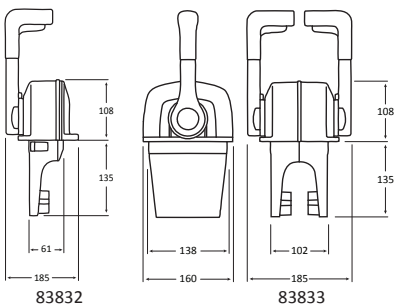
83670

Lock-in neutral



83832 83833

Two Lever - Single Function per Lever Engine Controls

Ultraflex® Two Lever Top Mount Controls - Single Function

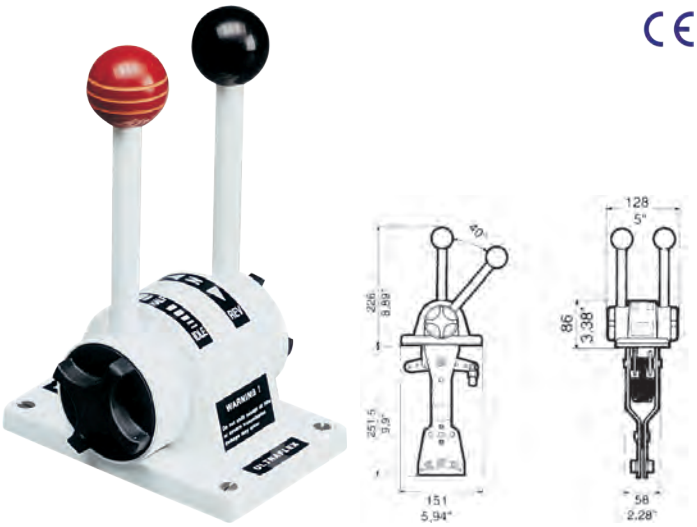
Part No.	Description
83651	B46 Two Lever Top Mount Control, Throttle and Shift
83648	B46S Two Lever Top Mount Control, Shift Only
83670	X12 Neutral Safety Switch (Optional)

- **Single Function Engine Controls:** Two lever / single function per lever engine control: each lever operates separately, either the throttle or the shift.
- Suitable for use with outboard, inboard or I/O power plants.
- Flush mount suitable for exposed positions such as a flying bridge.
- Made of marine aluminium with chrome plated lever.
- Throttle lever is provided with adjustable brake tension release system and shift lever with forward, reverse and neutral detents.
- Both the brake tension release and detents can be installed and adjusted from the outside.
- Neutral safety switch X12 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 safety switch is installed.

For use with engine control cables:

- Universal C33, C8 and MACH Zero engine control cables.
- C22 cables require K22 connection kit.

Ultraflex® Two Lever Top Mount Control - Single Function



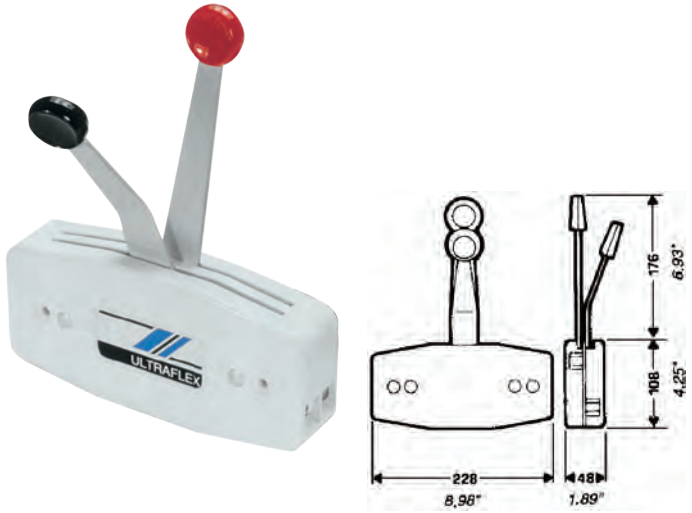
Part No.	Description
83654	B101 Two Lever Top Mount Control, Throttle and Shift
83670	X12 Neutral Safety Switch (Optional)

- **Single Function Engine Controls:** Two lever / single function per lever engine control: each lever operates separately either the throttle or the shift.
- Suitable for use with outboard, inboard or I/O power plants.
- Suitable for exposed positions such as flying bridge.
- The B101 is provided with the shift lever detents and with a brake tension release system adjustable from the outside of the throttle lever.
- Neutral safety switch X12 (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 safety switch is installed.

For use with engine control cables:

- Universal C33, C8 and MACH Zero engine control cables.
- C22 cables require K32 connection kit.

Ultraflex® Two Lever Side Mount Control - Single Function



Part No.	Description
83860	B47 Control Box, Light Grey Finish
83865	K25 Kit to Connect B47 Controls to cables C8 & MACH Zero.

- **Single Function Engine Controls:** Two lever / single function per lever engine control: each lever operates separately either the throttle or the shift.
- Made of nylon fibreglass with anodized aluminium levers.
- Left or right side mount installation.

For use with engine control cables:

- C5 and MACH 5 engine control cables require no connection kit.
- Universal C33, C8 and MACH Zero cable require K25 - 83865 connection kit.
- C14 and MACH 14 cables require K23 connection kit.

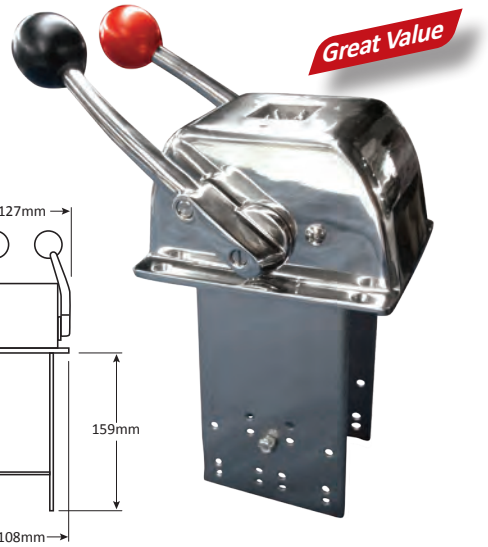
Stainless Steel Two Lever Top Mount Control - Single Function

Part No.	Description
83649	Stainless Steel Two Lever Single Function Engine Controls

- **Single Function Engine Controls:** Two lever / single function per lever engine control, each lever operates separately, either the throttle or the shift.
- Suitable for use with outboard, inboard or I/O power plants.
- 316G Stainless Steel engine controls, cast control arms and housing for a longer life.

For use with engine control cables:

- Universal C33, C8 and MACH Zero engine control cables.



Top Mount Single & Two Lever Controls - Single Function

Part No.	Description
83840	Single Lever Top Mount Control, Red Lever - Throttle
83842	Single Lever Top Mount Control, Black Lever - Shift
83844	Two Lever Top Mount Control, Throttle and Shift

- **Single Function Engine Controls:** Single or two lever / single function per lever engine control, each lever operates separately, either the throttle or the shift.
- The 83840 control is suitable for single throttle application.
- The 83842 control is suitable for single shift application.
- The 83844 one engine single function control with red and black levers for shift and throttle.

For use with engine control cables:

- Universal C33, C8 and MACH Zero engine control cables.

83840 83842 83844

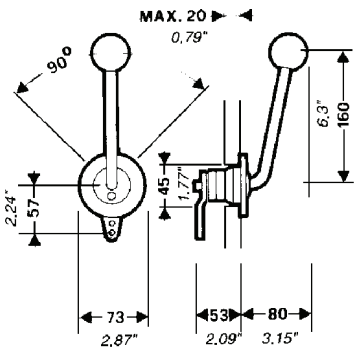
Ultraflex® Flush Side Mount Single Lever Control - Single Function

Part No.	Description
83660	B35 Single Function Control

- **Single Function Engine Controls:** lever operates separately, either the throttle or the shift.
- Suitable for throttle control or hydraulic shift operation.
- Provided with adjustable brake tension release and detents.
- Flush side mount installation.
- Lever and flange all stainless steel.
- Flush side mount installation.
- Suitable for throttle control and hydraulic shift operation.
- Provided with adjustable brake tension release and detents.

For use with engine control cables:

- Universal C33, C8 and MACH Zero engine control cables.



Ultraflex® Power A Mark II™ Electronic Control System

The easy to install Power A Mark II™ control system provides fingertip operation of throttle and shift levers.

Using reliable and precise digital data transmission, this single or dual function control system is specifically designed to work on mechanically controlled as well as electronic and electro-hydraulic gas and diesel inboards, sterndrives and outboards.

The Power A Mark II™ comes with many features including Dock Assist, which offers the operator the opportunity to reduce the sensitivity of the throttle function for easier dock side handling.

Other standard features include RPM Synchronization, which reduces engine vibration and improves fuel economy, a High Idle feature to increase RPM where higher idle is necessary for cold engine operations, a programmable Trolling Valve Control and neutral Warm Up.

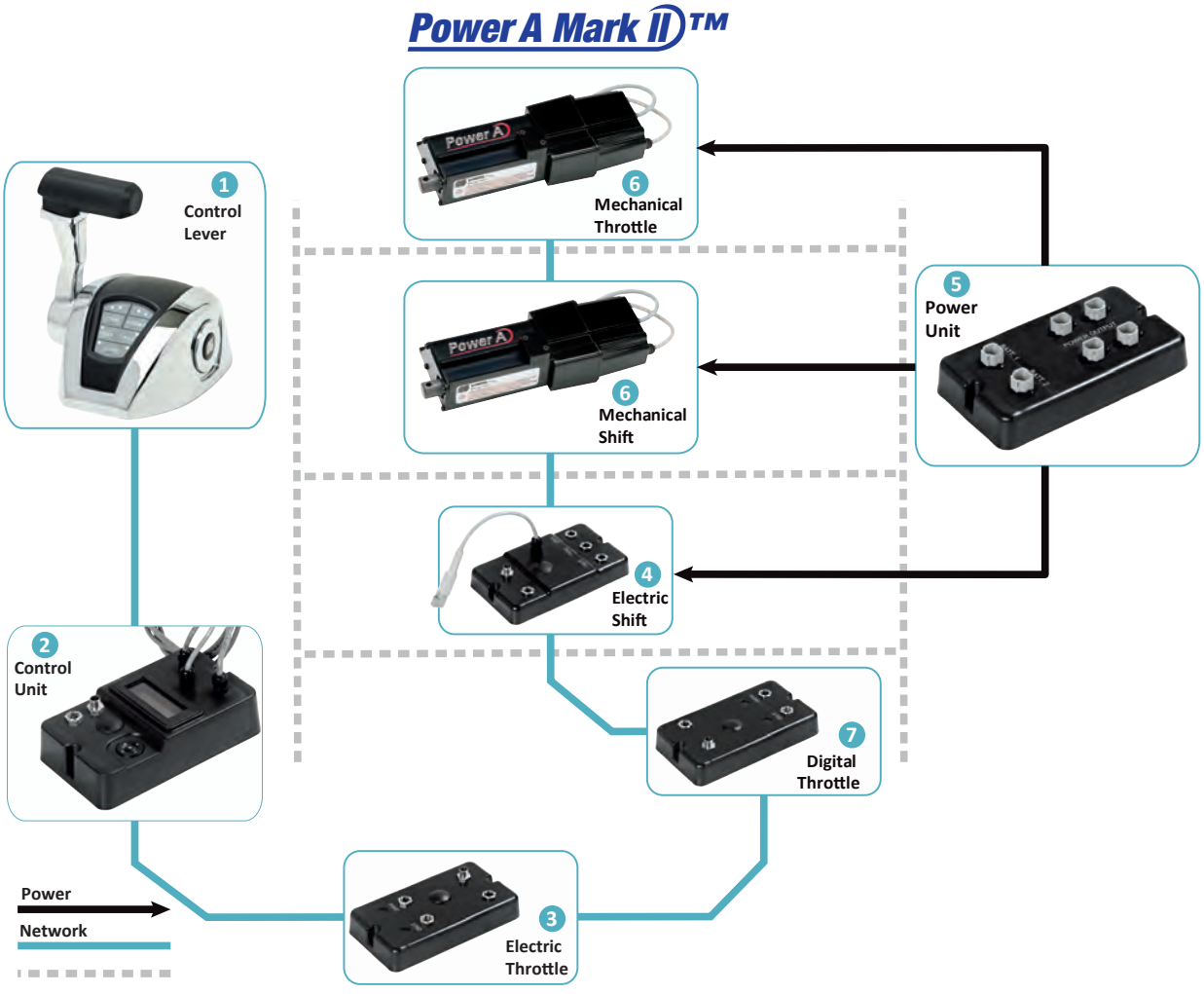
The stylish and ergonomically designed control makes the Power A Mark II™ suitable for many types of applications ranging from sport boats, yachts and commercial applications.

Available with and without trim, the control has audible and visual interfaces which alert the operator to the current status of the control system.

With the ability to control up to 2 engines from up to 4 different stations, the Power A Mark II™ is a modular and flexible system with simple to install components. The unique Control Unit Display of the Power A Mark II™ provides simple touch pad programming with descriptive information regarding the set up, tuning and diagnostics of the system.

The Power A Mark II™ is a system that can replace mechanical controls either on fully mechanical engines, or on fully electrical engines, or on engines with the combination of both characteristics.

The **"Power A Mark II™ - Installation and User Manual"** describes activities, operations, technical specifications which must be followed during the installation and/or usage of the product, in order to keep a valid warranty and obtain the better performance. Description and drawings in that manual are suitable to allow an easy installation and safe use of the product by skilled personnel. In case of doubt and/or for any information, please contact our Technical Service Department at Sam Allen Wholesale.



Ultraflex® Power A Mark II™ Electronic Control System

Part No.	Description
42009G	Single Engine Control without Trim
42010R	Single Engine Control with Trim
42011T	Twin Engines Control without Trim
42012V	Twin Engines Control with Trim

Technical Features:

- Single Lever/Dual Function and Dual Lever/Dual Function for shift, throttle and trolling.
- Up to 4 control stations.
- **Power supply:** min 9V to max 32V
- **Working temperature:** -25°C to +75°C
- **Control station functions:** Station Select, Engines Warm up, High idle, Docking, Engine synchronization and Trolling valve.
- **Electronic throttle outputs:** Voltage (double output 0-5V and 0-2,5V), PWM (0-100%, frequency from 200Hz to 1kHz) - Current (4 - 10mA).
- **Digital Throttle Output:** SAE J 1939, NMEA 2000.
- **Trolling valve output:** Voltage (0 - 5V), PWM (0-100%, frequency from 100Hz to 1 kHz), Current (4 - 20mA).
- **Electric shift control:** 2 or 3 ON/OFF or proportional solenoids, Shift delays fully settable.

Safety Devices:

- Start in-gear PROTECTION (start inhibition with shifted gear)
- Audible and visual diagnostic failure alarm (readable messages on the control unit display).
- Proportional shift delays.
- Programmable working parameters.
- Meets CEI EN 60945 standards.

EMC Certification and CE Mark

- Conforms with: CEI EN60945 and UNI-EN ISO 11547.

Compatibility With All Mechanical and Electronic Throttle Engines

- Cummins, Detroit Diesel, Scania, Iveco, FPT, Lombardini, VM Motori, FNM, Yanmar, CMD-Volkswagen, Hyundai ecc.

NOTE: The Power A Mark II™ electronic system actuators cannot be installed in those rooms where ignition-proof devices are required.

Control Unit

Part No.	Description	Dimensions
84410	Control Unit	210 x 120

- Control Unit: user interface for the configuration, settings and
- diagnostic of all the modules in a system.
- IP protection: IP65.

Throttle Units

Part No.	Description	Dimensions
84412	V-Throttle for 0-5V interfaces (voltage)	205 x 110
84414	I-Throttle for 4-20 mA interfaces (current)	205 x 110

84412 & 84414

- They supply the throttle electronic signal. Required for use with direct connection to electronic throttle on the engine.
- IP protection: IP65.

Part No.	Description	Dimensions
84416	PWM-Throttle	205 x 110
84418	SAEJ-Throttle	205 x 110

84416

84418

- **84416** It supplies the digital signals to CAN SAEJ 1939 or NMEA 2000 interfaces.
- **84418** It supplies the electrical signals to PWM interfaces.
- IP protection: IP65.

System Control Units & Main System Cables

Ultraflex® Shift Unit

Part No.	Description	Dimensions
84420	Shift Unit	210 x 120

- Controls up to 2 shifts with solenoids. Required for use with direct connection to the electrical shift unit on the transmission.
- Grants the power supply up to 4 modules with the input combination of up to 2 batteries, 12 and 24V. Required for all PowerA Mark II installations.
- IP Protection: IP65.

Ultraflex® E - Troll

Part No.	Description	Dimensions
84422	E-Troll Electronic or electric	205 x 110

- Control Unit for Trolling Valve both electronic (0-5V; 4-20mA) and electric (PWM) interface, designed according to customer's specifications. For controls with Trolling Valve please contact our Technical Service for custom configuration.
- According to customer's specifications.

Ultraflex® Power Unit

Part No.	Description	Dimensions
84426	Power Unit	205 x 110

- Required for all PowerA Mark II installations.
- Grants the power supply up to 4 modules with the input combination of up to 2 batteries, 12 and 24V.
- IP Protection: IP65.

Ultraflex® M -Actuator

Part No.	Description	Dimensions
84428	M-Actuator	

- The electromechanical actuators can control any mechanical interface (throttle shift or custom made trolling valve) through MACHZero and C8 mechanical cables.
- IP Protection: IP66.

Ultraflex® Main Power Supply Cable

Part No.	Description	Length Metres
84430	Main Power Supply Cable	1
84431	Main Power Supply Cable	3
84432	Main Power Supply Cable	7
84433	Main Power Supply Cable	10

- Main power supply of the system.

NOTE: One each battery.

Ultraflex® Power Cable Extension

Part No.	Description	Length Metres
84440	Power Cable Extension	1
84441	Power Cable Extension	3
84442	Power Cable Extension	7
84443	Power Cable Extension	10

- Power extension cable for modules connection.

NOTE: One each mechanical actuator.

Ultraflex® Shift Cable

Part No.	Description	Length Metres
84450	Shift Cable	1
84451	Shift Cable	3
84452	Shift Cable	7
84453	Shift Cable	10

• Solenoid connection cable.
NOTE: One each solenoid shift.

Ultraflex® Shift Cable with Electric Troll

Part No.	Description	Length Metres
84460	Shift Cable with Electric Troll	1
84461	Shift Cable with Electric Troll	3
84462	Shift Cable with Electric Troll	7
84463	Shift Cable with Electric Troll	10

• Shift and trolling solenoid connection cable.
NOTE: One each shift and trolling with solenoids.

Ultraflex® 3 Solenoid Shift Cable (Neutral Solenoid)

Part No.	Description	Length Metres
84470	3 Solenoid Shift Cable (Neutral Solenoid)	1
84471	3 Solenoid Shift Cable (Neutral Solenoid)	3
84472	3 Solenoid Shift Cable (Neutral Solenoid)	7
84473	3 Solenoid Shift Cable (Neutral Solenoid)	10

• 3 solenoid connection cable.
NOTE: One each 3 solenoid shift.

Ultraflex® Can Cable

Part No.	Description	Length Metres
84480	CAN Cable	1
84481	CAN Cable	3
84482	CAN Cable	7
84483	CAN Cable	10
84484	CAN Cable	15
84485	CAN Cable	20

• Network connection cable.
NOTE: Can Cable.

Ultraflex® Universal V-Troll Cable

Part No.	Description	Length Metres
84490	Universal V-Troll Cable	2
84491	Universal V-Troll Cable	4

• 0-5 V cable with no redundancy.

Spare Parts, Network Terminators & E-Throttle Unit Charts

Ultraflex® Universal I-Troll Cable

Part No.	Description	Length Metres
84494	Universal I-Troll Cable	2
84495	Universal I-Troll Cable	4

- 4-20 mA output cable, no connectors included.

Ultraflex® Network Terminators

Part No.	Description
84429	Network Terminators

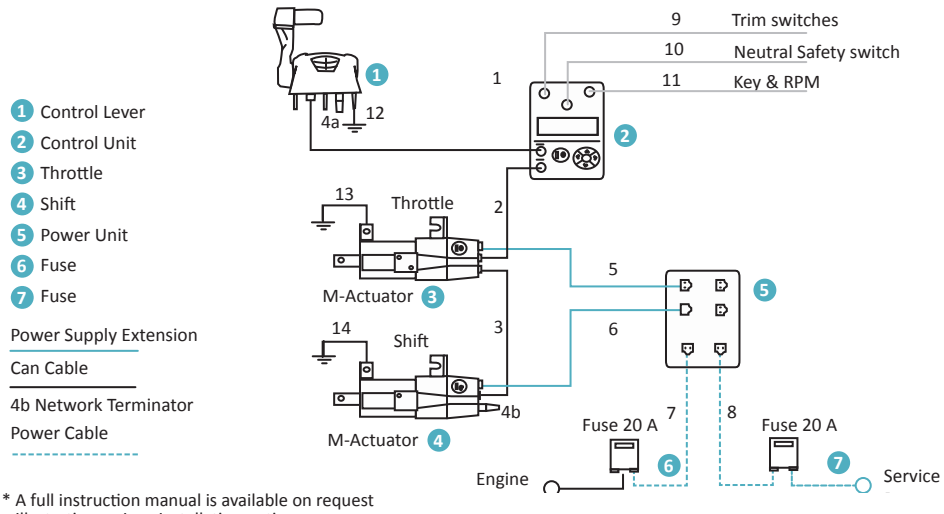
- Each system needs two terminators.
- For cable ends - choose terminator according to your needs.

Ultraflex® Spare Parts

Part No.	Description	Qty
84498	Cable connection Kit	1 for each actuator
84499	Conduit clamp Kit	1 for each actuator

- **84498** Kit to connect mechanical cable to the actuator.
- **84499** Conduit clamp kit for mechanical cable kit.

The Diagram Illustrates a Typical Single Engine Application with Mechanical Throttle and Mechanical Shift



* A full instruction manual is available on request illustrating various installation options.

E-Throttle Unit

Model	Part No.	Description	Features	No. Of Engines	Note
V-Throttle	**84412**	Throttle with analog voltage interface	Redundant voltage input, IVS.	1 - 2	FPT, VolksWagen, Yanmar, Mercruiser,Lombardini
I-Throttle	**84414**	Throttle with current analog interface	Current out puts.	1 - 2	4 - 20 mA throttle engines
PWM Throttle	**84416**	Throttle with PWM interface	PWM outputs	1 - 2	Perkins, Caterpillar
SAEJ -Throttle	**Custom**	Throttle with SAEJ 1939 interface	CAN DeviceNet SAEJ 1939 outputs	1 - 2	SAEJ 1939 engines
NMEA -Throttle	**Custom**	Throttle with NMEA 2000 interface	CAN DeviceNet NMEA 2000 outputs	1 - 2	NMEA 2000 engines

E-Throttle Cables

Model	Description	Application	Length Metres	Part No.	Note
Mercruiser 4.2 Black V-Throttle cable	Mercruiser 4.2 Black V-Throttle cable	Mercruiser engines 0 – 5 V cable	2	**84500**	Mercruiser 4.2 black engines
	Mercruiser 4.2 Black V-Throttle cable	Mercruiser engines 0 – 5 V cable	4	**84501**	
Mercruiser QSD V-Throttle cable	Mercruiser QSD V-Throttle cable	Mercruiser engines 0 – 5 V cable	2	**84504**	Mercruiser QSD engines
	Mercruiser QSD V-Throttle cable	Mercruiser engines 0 – 5 V cable	4	**84505**	
Yanmar V-Throttle cable	Yanmar V-Throttle cable	Yanmar engines 0 – 5 V cable	2	**84508**	Yanmar BY engines.
	Yanmar V-Throttle cable	Yanmar engines 0 – 5 V cable	4	**84509**	
Universal SAEJ1939-Throttle cable	Universal SAEJ1939 Throttle cable	SAEJ1939 cable with no connector	2	**84512**	None
	Universal SAEJ1939 Throttle cable	SAEJ1939 cable with no connector	4	**84513**	

Ultraflex® Components for Trolling Systems

Engine	No. Of Engines	Components	Part No.	Quantity
Mechanical trolling valve	Single Engine	Mechanical actuator (Troll)	**84428**	1
		CAN cable	Select CAN Cable	1
		Power Cable Extension	Select Power Cable Extension	1
	Twin Engines	Mechanical Actuator	**84428**	2
		Power Unit	**84426**	0 (*)
		CAN cable	Select Can Cable	2
		Power Supply Cable (general)	Select Power Supply Cable (general)	0 (*)
		Power cable extension	Select Power cable extension	2
	(*) When there are no more free sockets in the existing power unit, add one Power Unit with one or two power supply cables according to battery number. Refer to the diagram on installation manual.			
Electric troll (proportional solenoid)	Single Engine	Shift Unit	**84420**	1(**)
		Can Cable	Select Can Cable	1(**)
		Power Cable Extension	Select Power cable extension	1(**)
		Cavo Shift Con Troll	Select Cavo Shift Con Troll	1
	Twin Engines	Shift Unit	**84420**	1(**)
		Can Cable	Select Can Cable	1(**)
		Power Cable Extension	Select Power Cable Extension	1(**)
		Power Unit	**84426**	0(*)
		Power supply cable (general)	Select Power supply cable (general)	0(*)
		Shift Cable with Troll	Select Shift Cable with Troll	2
	(*) When there are no more free sockets in the existing power unit, add one Power Unit with one or two power supply cables according to battery number. Refer to the diagram on installation manual.			
	(**) When a shift unit is already present in the system, it can control the electric troll by using the proper cable. When a shift box is not present, add one to the system with the shift and CAN cables.			
Electronic Troll (0-5V , 4-20mA)	Single Engine	E-Troll Unit	Select Custom Components	1
		Can Cable	Select Can Cable	1
		Troll Cable	Select Troll Cable	1
	Twin Engine	E-Troll Unit	**84422**	1
		Can Cable	Select Can Cable	1
		Troll Cable	Select Troll Cable	2

Ultraflex® Order Guide

Engine	No. Of Engines	Components	Part No.	Quantity
PwA II-EE Electronic throttle Electric shift	Single Engine	Single control with trim (or no trim)	Select control	1
		Control Unit	**84410**	1
		E-Throttle unit	Select E-Throttle Unit	1
		E-Shift unit	**84420**	1
		Throttle cable	Select Throttle cable	1
		Shift cable	Select Shift cable	1
		Power supply cable (general)	Select Power supply cable (general)	1
		CAN cable	Select CAN cable	3
		Network terminators	**84429**	1
		Power Unit (optional for second battery)	**84426**	1
		Power cable extension (optional for second battery)	Select Power Cable Extension	1
		Power supply cable (optional for second battery)	Select Power Supply Cable	1
	Two Engines	Dual control with trim (or no trim)	Select control	1
		Control Unit	**84410**	1
		E-Throttle unit	Select E-Throttle Unit	1
		E-Shift unit	**84420**	1
		Throttle cable	Select Throttle cable	2
		Shift cable	Select Shift cable	2
		Power supply cable (general)	Select Power supply cable (general)	1
		CAN cable	Select CAN cable	3
		Network terminators	**84429**	1
		Power Unit (optional for second battery)	**84426**	1
		Power cable extension (optional for second battery)	Select Power cable extension	1
		Power supply cable (optional for second battery	Select Power supply cable	1
PwA II-EM Electronic throttle Mechanical shift	Single Engine	Single control with trim (or no trim)	Select control	1
		Control Unit	**84410**	1
		E-Throttle unit	Select E-Throttle unit	1
		Mechanical actuator	**84428**	1
		Throttle cable	Throttle cable	1
		CAN cable	Select CAN cable	3
		Power supply cable (general)	Select Power supply cable (general)	1
		Network terminators	**84429**	1
		Power Unit (optional for second battery)	**84426**	1
		Power cable extension (optional for second battery)	Select Power cable extension	1
		Power supply cable (optional for second battery	Select Power supply cable	1
	Two Engines	Dual control with trim (or no trim)	Select control	1
		Control Unit	**84410**	1
		E-Throttle unit	Select E-Throttle unit	1
		Mechanical actuator	**84428**	2
		Throttle cable	Select Throttle cable	2
		CAN cable	Select Can Cable	4
		Power supply cable (general)	Select Power supply cable (general)	1
		Network terminators	**84429**	1
		Power Unit	**84426**	1
		Power extension cable	Select Power extension cable	2
		Power supply cable (optional for second battery)	Select Power supply cable	1
For each additional station add:				
	Single Engine:	Single lever control station with trim (or no trim)	Select control	1
		CAN cable	Select CAN cable	1
	Two Engines:	Dual lever control station with trim (or no trim)	Select control	1
		CAN cable	Select CAN cable	1

Ultraflex® Order Guide

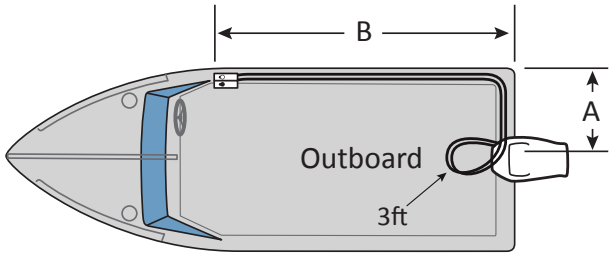
Engine	No. Of Engines	Components	Part No.	Quantity
PwA II-ME Mechanical throttle Electronic shift	Single Engine	Single control with trim (or no trim)	Select control	1
		Control Unit	**84410**	1
		E-Throttle unit	**84420**	1
		Mechanical actuator	**84428**	1
		Throttle cable	Select throttle cable	1
		CAN cable	Select CAN cable	3
		Power supply cable (general)	Select Power supply cable (general)	1
		Network terminators	**84429**	1
		Power Unit (optional for second battery)	**84426**	1
		Power extension cable (optional for second battery)	Select power extension cable	2
		Power supply cable (optional for second battery)	Select power supply cable	1
	Two Engines	Dual control with trim (or no trim)	Select control	1
		Control Unit	**84410**	1
		E-Throttle unit	**84420**	1
		Mechanical actuator	**84428**	2
		Throttle cable	Select throttle cable	2
		CAN cable	Select CAN cable	4
		Power supply cable (general)	Select Power supply cable (general)	1
		Network terminators	**84429**	1
		Power Unit	**84426**	1
		Power extension cable	Select Power extension cable	3
		Power supply cable (optional for second battery)	Select Power supply cable	1
PwA II-MM Mechanical throttle Mechanical shift	Single Engine	Single control with trim (or no trim)	Select control	1
		Control Unit	**84410**	1
		Mechanical actuator	**84428**	2
		CAN cable	Select CAN cable	3
		Power supply cable (general)	Select Power supply cable (general)	1
		Network terminators	**84429**	1
		Power Unit	**84426**	1
		Power extension cable	Select power extension cable	2
		Power supply cable (optional for second battery)	Select Power supply cable	1
	Two Engines	Dual control with trim (or no trim)	Select control	1
		Control Unit	**84410**	1
		Mechanical actuator	**84428**	4
		CAN cable	Select CAN cable	5
		Power supply cable (general)	Select power supply cable (general)	1
		Network terminators	**84429**	1
		Power Unit	**84426**	1
		Power extension cable	Select power extension cable	4
		Power supply cable (optional for second battery)	Select power supply cable	1
For each additional station add:				
	Single Engine:	Single lever control station with trim (or no trim)	Select control	1
		CAN cable	Select CAN cable	1
	Two Engines:	Dual lever control station with trim (or no trim)	Select control	1
		CAN cable	Select CAN cable	1

How To Measure For Control Cable Installation

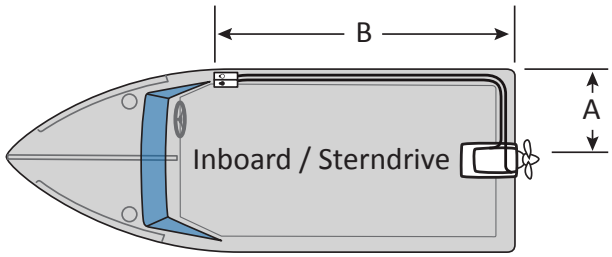
How to measure for Control Cable Installation: For new installation, measure A and B distance from the control along an unobstructed cable routing to clutch and/or throttle connection. Round this dimension up to the next whole foot (304.8mm): you will have your cable length. We recommend that the cable bends have a maximum radius of about 200mm. For outboard engine installations, it is necessary to add three feet to the obtained length, in order to allow for the engine movement. **To determine the required length of the REPLACEMENT CABLE, measure from tip to tip**. When ordering, specify the cable length in feet, rounding the dimension up to the whole foot (304.8mm). If any kit is required to complete cable connection, consult accessories section.

Selection Of Engine Control Cables

Engines	Engine Control Cables
Mercury® Outboard	C5, MACH 5
Mariner® Outboard over 50hp	C5, MACH 5
Force® Outboard	C8, C33 or MACH Zero
Selva® Outboard	C8, C33 or MACH Zero
Yamaha® Outboard	C8, C33 or MACH Zero
Suzuki® Outboard	C8, C33 or MACH Zero
Tohatsu® Outboard	C8, C33 or MACH Zero
Honda® Outboard	C8, C33 or MACH Zero
Johnson-Evinrude® Outboard	1979 to Date C14, MACH 14
Sterndrive MerCruiser®	C5, MACH 5
Sterndrive OMC®	1979 to Date C14, MACH 14
Sterndrive Volvo® Penta	C8, C33 or MACH Zero
Inboard	C8, C33 or MACH Zero

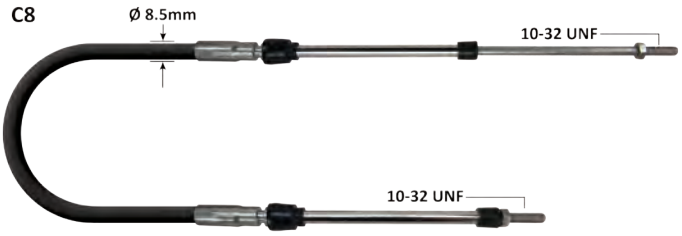


A + B + 3ft(90cm) = Length



A + B = Length

Ultraflex® C8 Engine Control Cables

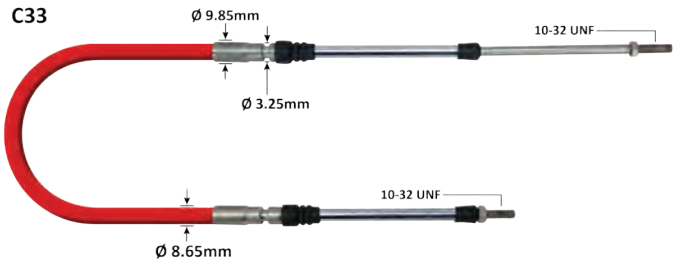


Part No.	Feet	Part No.	Feet	Part No.	Feet
83006	6′	83014	14′	83023	23′
83007	7′	83015	15′	83024	24′
83008	8′	83016	16′	83026	26′
83009	9′	83017	17′	83028	28′
83010	10′	83018	18′	83030	30′
83011	11′	83019	19′	83032	32′
83012	12′	83020	20′	83033	33′
83013	13′	83022	22′		

- Stroke: 87mm.
- Suitable for outboard, inboard and sterndrive engines.
- High efficiency for smooth operation.
- High flexibility for reduced bend radius.
- Ideal for long complex cable routing.
- Maintenance free.
- Stainless steel cables end fittings.
- High resistance black outer jacket.

C33 Engine Control Cables

Part No.	Metres	Part No.	Metres	Part No.	Metres
33100	1.00m	33450	4.50m	33800	8.00m
33125	1.25m	33475	4.75m	33825	8.25m
33150	1.50m	33500	5.00m	33850	8.50m
33175	1.75m	33525	5.25m	33875	8.75m
33200	2.00m	33550	5.50m	33900	9.00m
33225	2.25m	33575	5.75m	33925	9.25m
33250	2.50m	33600	6.00m	33950	9.50m
33275	2.75m	33625	6.25m	33975	9.75m
33300	3.00m	33650	6.50m	331000	10.00m
33325	3.25m	33675	6.75m	331025	10.25m
33350	3.50m	33700	7.00m	331050	10.50m
33375	3.75m	33725	7.25m	331075	10.75m
33400	4.00m	33750	7.50m	331100	11.00m
33425	4.25m	33775	7.75m		



- Stroke 76mm
- C33 Red push\pull cables are the most widely used cable type in the world. It is a proven economical work horse cable.
- For outboards, sterndrives, inboards, jets and auxiliary transmissions.
- Corrosion resistant 304G solid stainless steel core.
- Corrosion resistant stainless steel hub .
- Protective wiper seals.
- Ultraviolet stabilised high density polyethylene outer jacket protects from abrasion, moisture and dust.
- Oil tempered lay wires around a polyethylene liner for continuous smooth operation.
- Anti-corrosive nickle plated brass sleeve.
- Sleeve is designed to swing 8° which allows it to operate in any direction.
- Simple Installation with fitting parts provided.

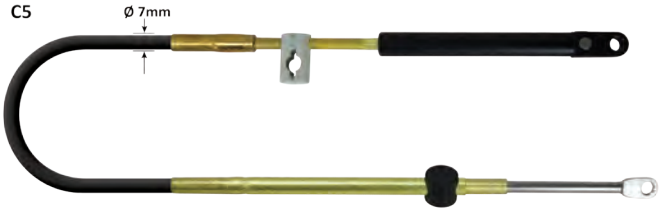
Ultraflex® C14 Engine Control Cables

Part No.	Feet	Part No.	Feet	Part No.	Feet
83209	9’	83213	13’	83217	17’
83210	10’	83214	14’	83218	18’
83211	11’	83215	15’	83220	20’
83212	12’	83216	16’	83222	22’

- Stroke: 75mm.
- For Johnson, Evinrude, OMC® Engines.
- Manufactured after 1979.

Ultraflex® C5 Engine Control Cables

Part No.	Feet	Part No.	Feet	Part No.	Feet
83309	9’	83314	14’	83320	20’
83310	10’	83315	15’	83322	22’
83311	11’	83316	16’	83324	24’
83312	12’	83317	17’		
83313	13’	83318	18’		



- Stroke: 95mm.
- For Mercury® and MerCruiser® Engines.

Engine Control Cables

Ultraflex® C16 Engine Control Cables

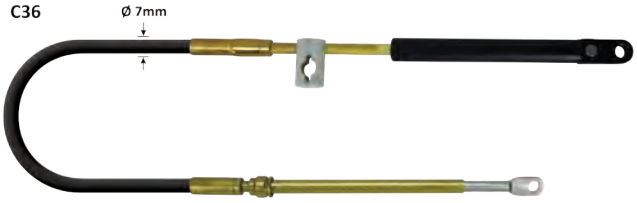
Part No.	Feet
83252	12’
83253	13’
83254	14’

Part No.	Feet
83255	15’
83256	16’

Part No.	Feet
83257	17’
83258	18’

- Stroke: 80mm.
- C16 Mariner Engines up to 40hp.

Ultraflex® C36 Engine Control Cables



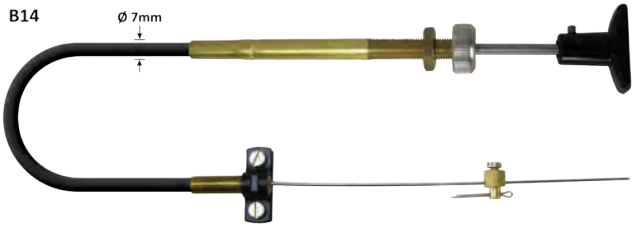
Part No.	Feet
83350	10’
83351	11’
83352	12’
83353	13’

Part No.	Feet
83354	14’
83355	15’
83356	16’
83357	17’

Part No.	Feet
83358	18’
83359	19’
83360	20’

- Stroke: 87mm.
- For Mercury® and MerCruiser® engines and Mercury® Generation II™ series controls.

Ultraflex® B14 Engine Control Cables



Part No.	Feet
83805	5’ B14 Shut off cable
83808	8’ B14 Shut off cable
83810	10’ B14 Shut off cable
83812	12’ B14 Shut off cable
83814	14’ B14 Shut off cable
83815	15’ B14 Shut off cable

Part No.	Feet
83816	16’ B14 Shut off cable
83818	18’ B14 Shut off cable
83820	20’ B14 Shut off cable
83823	23’ B14 Shut off cable
83824	24’ B14 Shut off cable

- Stroke: 70mm.
- Designed for throttle, fuel shut off and other applications.
- Supplied with L13 (**83605**) stop collar & L14 (**83610**) cable clamp block.

Ultraflex® MACH Series Engine Control Cables

MACH Series Engine Control Cables - High Efficiency and Flexibility

High performance MACH Cables are the result of decades of experience in producing high quality, long lasting, flexible cables. The innovative core design maximizes efficiency and minimizes lost motion, while the exclusive design of the conduit provides extremely high level of flexibility.

Features:

- Suitable for outboard - inboard and sterndrive engines.
- High efficiency for smooth operation.
- High flexibility for reduced bend radius. Ideal for long complex cable routing.
- Maintenance free.
- Stainless steel cables and fittings.
- High resistance blue outer jacket against abrasion, UV and chemicals.

MACH Zero | MACH 5 Mercury Mercruiser | MACH 14 Johnson Evinrude

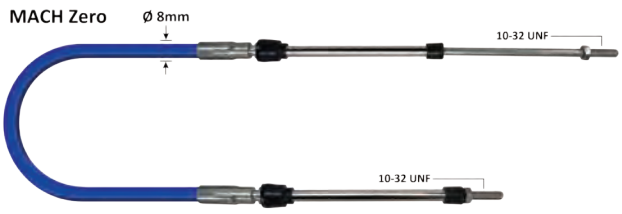
Ultraflex® MACH Zero Engine Control Cables

Part No.	Feet
83107M	7ft
83108M	8ft
83109M	9ft
83110M	10ft
83111M	11ft
83112M	12ft
83113M	13ft
83114M	14ft
83115M	15ft
83116M	16ft
83117M	17ft
83118M	18ft
83119M	19ft

Part No.	Feet
83120M	20ft
83121M	21ft
83122M	22ft
83123M	23ft
83124M	24ft
83125M	25ft
83126M	26ft
83127M	27ft
83128M	28ft
83130M	30ft
83132M	32ft
83134M	34ft
83136M	36ft

Part No.	Feet
83140M	40ft
83145M	45ft
83146M	46ft
83150M	50ft
83154M	54ft
83155M	55ft
83160M	60ft
83165M	65ft
83168M	68ft
83170M	70ft
83175M	75ft
83185M	85ft

High Performance



- Stroke 87mm.
- MACH Zero for Universal Style engines.
- For use with inboard, sterndrive and outboard engines.
- Ideal for high performance applications, long cable runs and complex routing.
- Blue colour jacket.

Ultraflex® MACH 5 Engine Control Cables

Part No.	Feet
833510	10ft
833511	11ft
833512	12ft
833513	13ft
833514	14ft

Part No.	Feet
833515	15ft
833516	16ft
833517	17ft
833518	18ft
833519	19ft

Part No.	Feet
833520	20ft
833522	22ft
833524	24ft
833526	26ft

High Performance

- Stroke 95mm.
- Ideal for high performance applications, blue colour jacket.
- MACH 5 for Mercury® & MerCruiser® engines.
- Blue colour jacket.

Ultraflex® MACH 14 Engine Control Cables

Part No.	Feet
833710	10ft
833711	11ft
833712	12ft
833713	13ft
833714	14ft

Part No.	Feet
833715	15ft
833716	16ft
833717	17ft
833718	18ft
833719	19ft

Part No.	Feet
833720	20ft
833722	22ft
833724	24ft
833726	26ft

High Performance

- Stroke 75mm.
- Ideal for high performance applications.
- MACH 14 for Johnson, Evinrude & OMC® engines.
- Manufactured after 1979.
- Blue colour jacket.

Ongaro® Palm Beach Arm

Part No.	Description
84156	Ongaro® Single Lever Side Mount Control

- Fits single lever side mount electric & hydraulic controls. Made from Stainless Steel 316.
- Suits Ultraflex®, Morse® and Teleflex® 15mm keyed shaft.

Ongaro® Yacht Arm

Part No.	Description
84157	Ongaro® Single Lever Side Mount Control

- Control / Yacht arm with switch for bow thruster fits most single lever side mount controls. Made from Stainless Steel 316G.
- Suits Ultraflex®, Morse® and Teleflex® 15mm keyed shaft.

Ongaro® Stainless Steel Twin Engine Controls - Single Action

Part No.	Description
84158	Ongaro® Twin Lever Controls

- Twin Engine controls. Made from Stainless Steel 316G. Single Action.
- Suits two lever single function per lever engine control 18mm spline shaft.

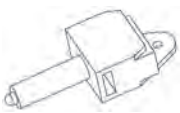
Ultraflex® Replacement Installation Kits

Part No.	Description
84150	Spare Handle & Knob suits 83645 & 83650

- 18mm Spline shaft.

Ultraflex® Neutral Safety Switch

83670



83673

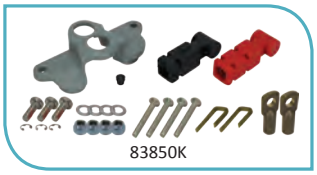
83675

Part No.	Description
83670	X12 Neutral Safety Switch suits 83301B to 83302C, 83648, 83651, 83654, 83825, 83830, 83832, 83833, 83845, 83847, 83850, 83851, 83855 and 83858
83673	X41 Neutral Safety Switch suits 83838 and 83839
83675	X43 Neutral Safety Switch suits 83645 and 83650

Ultraflex® Replacement Installation Kits

83845K

83847K

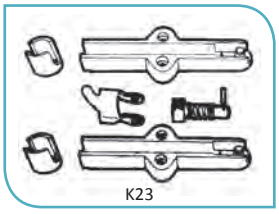


83850K

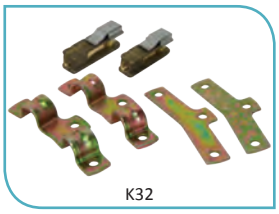
Part No.	Description
83845K	Spare Installation Kit suits 83845
83847K	Spare Installation Kit suits 83847
83850K	Spare Installation Kit suits 83850
83652	Spare Installation Kit suits 83650

Ultraflex® Connection Kits for Engine Control Boxes

Part No.	Description
83864	K23 Kit connects C14 & MACH 14 Cables to a B47 Engine Control Box
83865	K25 Kit connects C33, C8 & MACH Zero Cables to a B47 Engine Control Box
83632	K32 Kit connects a C22 Cable to a Top Mount Two Lever B101 Engine Control Box sold in pairs
83647	K33 Kit connects a C22 Cable to a B103 Engine Control Box
83637	K35 Kit connects C5, C16 & MACH 5 Cables to Single Lever B183, B184, B85, B310CH, B73, B74, B89, B90, B665 & B666 Engine Control Boxes
83635	K51 Kit connects C14 and MACH 14 Cables to B89 and B90 Engine Control Boxes
83636	K56 Kit connects C33, C2, C8 and MACH Zero Cables for use with Mercury® Engines
83638	K57 Kit connects C33, C2, C8 and MACH Zero Cables for use with BRP® & Evinrude® Engines
83643	K60 Kit connects C5, C16 and MACH 5 cables to B301CR, B302CR, B301B and B301B Engine Control Boxes
83644	K61 Kit connects a C22 Cable to B301CR, B302CR, B301B and B301B Engine Control Boxes
83642	K62 Kit connects C36 and MACH 36 Cable to B301CR, B302CR, B301B and B301B Engine Control Boxes
83631	K71 Kit connects to C14, MACH 14 Cables to B400 and B400- ETC Engine Control Boxes
83633	K72 Kit connects C5, C16. MACH 5 Cables to B400 and B400- ETC Engine Control Boxes
83634	K73 Kit connects C36 and MACH 36 Cable to B400 and B400- ETC Engine Control Boxes
83639	Mercury® & MerCruiser® Control Adaptor Kit sold in pairs
83640	OMC® Control Adaptor Kit sold in pairs


K23
83864

K25
83865


K32
83632

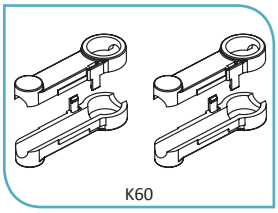
K33
83647

K35
83637

K51
83635

K56
83636

K57
83638


K60
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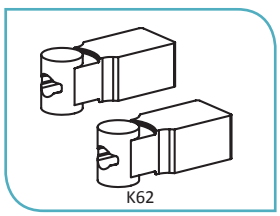
K61
83644


K62
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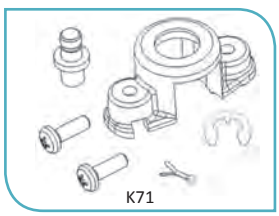
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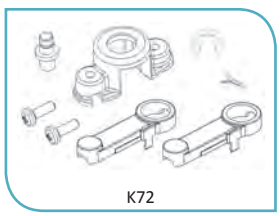
K72
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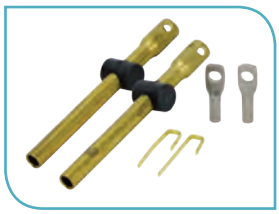
83639


83640

Ultraflex® L2 Cable Clamp Block

Part No.	Description
83585	L2 Cable Clamp Block

Ultraflex® L3 Shim & Clamp Block

Part No.	Description
83590	L3 Shim & Clamp Block Fits C8, MACH Zero & C33 Cables

Ultraflex® Stainless Steel Ball Joint

83595 & 83596

83593 & 83594

Part No.	Description
83595	L7 Stainless Steel Ball Joint with 10-32 internal thread. Fits C8, MACH Zero Cables & C33
83596	Stainless Steel Ball Joint with 6mm internal thread
83593	Stainless Steel Ball Joint with 1/2" UNF internal thread
83594	Stainless Steel Ball Joint with 3/8" UNF internal thread

Ultraflex® L12 Cable End Fitting

Part No.	Description
83600	L12 Cable End Pivot Fits C8, MACH Zero & C33 Cables

Ultraflex® L13 Stop Collar

Part No.	Description
83605	L13 Stop Collar Fits B14 Cables

Ultraflex® Stainless Steel L14 Cable Clamp Block

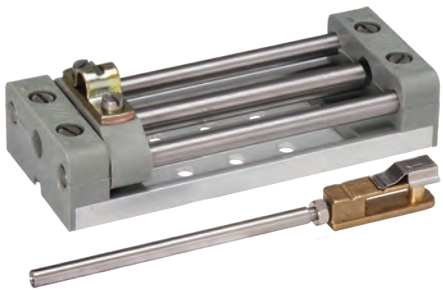
Part No.	Description
83610	L14 Cable Clamp Block Fits C8, MACH Zero & C33 Cables

Ultraflex® L23 Selector Unit

Part No.	Description
83615	L23 Selector Unit

- Selector unit for use with single lever controls in dual station applications. It enables independent control over throttle and shift from either the main station or the flying bridge station.

NOTE: Before changing station, throttle must be on idling position and shift in neutral.



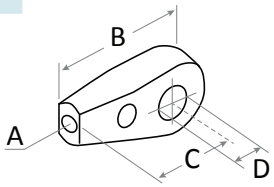
Ultraflex® L25 & L26 Clevis Attachment

Part No.	Description
83620	L25 Clevis 10-32 UNF. Fits C8, C33 & MACH Zero Cables
83626	L26 Clevis 1/4" x 28 thread. Fits C22 cable

Ultraflex® Alloy Terminal Eye

Part No.	Description
83598	Alloy Terminal Eye Suits 10-32 UNF Thread

- Replaces standard plastic eye terminal in kits.
- Fits C8, C33 & MACH Zero
  - A = No 10 - 32 UNF
  - B = 25mm
  - C = 32.4mm
  - D = 7.5mm



Ultraflex® Stainless Steel Cable Hook Clip

Part No.	Description
83608	Single Quick Cable Hook Clip
83609	Double Quick Cable Hook Clip

- Single or double cable hook clip offers a secure attachment point for cables.
- Made from stainless steel.

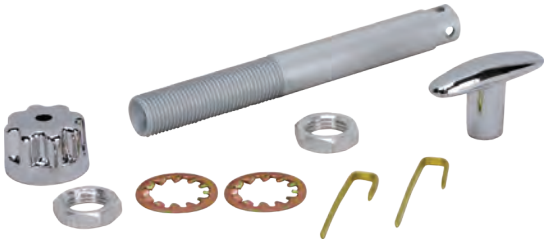
83608

83609

Ultraflex® SD Control

Part No.	Description
83641	One Function T Handle Operation

- One function T handle operation
- Ideal for throttle, choke and air or fuel shutdown.
- For use with C8, MACH Zero and C33 cables



Ultraflex® K68 Recessed Bulkhead

Part No.	Description
83627	K68 Recessed Bulkhead Support for B14 Cable

Ultraflex Steering & Controls

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